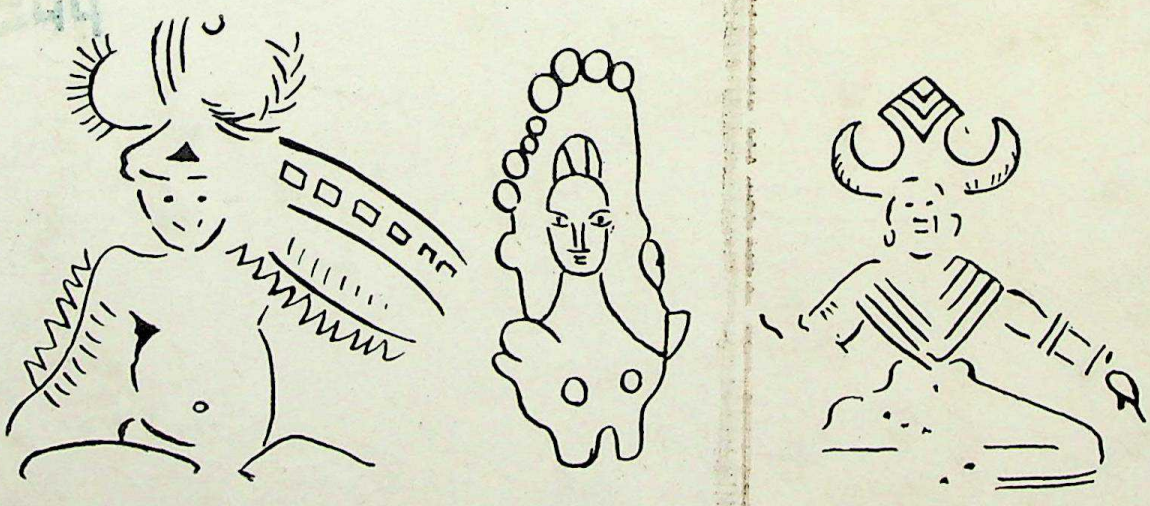
Prehistory and Protohistory of India



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PREHISTORY AND PROTOHISTORY OF INDIA

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Prehistory and Protohistory of India

by
K. C. JAIN

AGAM KALA PRAKASHAN
NEW DELHI

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PREFACE

The history of any country commences from the time when its written records are available. In India, generally the earliest deciphered records are of Aśoka who lived in the third century B.C. It is reasonable to hold that the origin and development of the script of these inscriptions in this form probably took about three hundred years. Hence the history of India in a scientific sense is known to have started from the sixth century B.C. This was the time of Buddha and Mahāvīra, and the beginning of the organized states in Northern India.

This book gives an account of the evolution and growth of cultures from the times when man settled in this country ending with the sixth century B.C. Formerly, this whole period up to the sixth century B.C. was considered to be a dark period. Recent efforts made by scholars from time to time have thrown light on this period. Tools and implements made of stone, bone or metal, fossils, potsherds, etc. discovered at different archaeological sites give a continuous idea of the stages of the evolution and growth of Indian Culture. Besides, some scholars have critically studied the *Vedas* and examined the traditions embodied in the epics and the *Purāṇas* in order to reconstruct the history of this period.

There are clear stages in the making of the Prehistory and Protohistory of India. The first of these stages was of discoveries of antiquities from the surface of the earth, their collection, classification and cataloguing. Excavations were conducted on important archaeological sites, and reports of most sites were published. Finally, there was constructive utilisation of this type of material for compiling Prehistory and Protohistory of India.

The first systematic investigation for the study of Prehistory started in 1863 when ROBERT BRUCE FOOTE made a sensational discovery by unearthing a palaeolithic tool from a laterite pit at Pallavaram near Madras. Between 1863 and 1904, this explorer located as many as 459 prehistoric sites in Peninsular India. The first brief essay on '*chronology of prehistoric remains*' was published in *Foote's catalogne of the collection in the Madras museum (1901)*, and subsequently a more elaborate account was also made available in his posthumous work of 1916. In 1866, V. BALL also collected several tools of palaeolithic types in Bengal and Orissa. In 1865, WYNNE found a chipped agate flake in association with fossils in the Upper Godavari; and in 1873, HACKETT recovered a hand-axe under similar circumstances in the Narmada deposits of the Middle Pleistocene Age. Between 1930 and 1932, M.C. BURKITT and L.A. CAMMIADE respectively published two articles which laid the foundation of a systematic study of Prehistory in India. In 1932, an interesting implement-bearing section was discovered by K.R.U. TODD at Kandivli

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(Bombay), and he claimed to establish a clear succession of different types of stone tools such as hand-axes, choppers and scrapers, and microliths. The foundation of scientific investigation was thus laid in the science of Prehistory in India.

In 1935, the Yale-Cambridge Expendition led by H.DE. TERRA and T.T. PATERSON carried out systematic investigation on the subject of Ice Age and associated human cultures in Kashmir and Jammu territories, north-western Punjab, Sind, the Narmada Valley, and Madras by concerted methods of Geology, Palaeontology and Prehistoric archaeology. Both H.DE. TERRA and T.T. PATERSON have tried to prove that there occurred four glacial and three Inter Glacial Ages in Kashmir.

Recently, enormous work on Prehistoric archaeology was done by the Archaeological Survey of India. Stone Age sites were explored and excavated in different parts of India such as Gujarat, Madras, Uttar Pradesh, Rajasthan, Madhya Pradesh, Orissa and Bengal. Those, who have been credited with such work, are V.D. KRISHNASWAMI, B.B. LAL, B.K. THAPAR, R.V. JOSHI, M.N. DESHPANDE, K.V. SOUNDAR RAJAN, N.R. BANERJEE and others. V.D. KRISHNASWAMI's main work was, however, in the coastal plain of Madras, but he explored the Sabarmati Valley in Gujarat where hand-axes and pebble-choppers were recovered from lateritized gravel beds. He also visited the Singrauli basin in Mirzapur District of Uttar Pradesh. He wrote the articles on '*Stone Age India*' and '*the Neolithic Pattern of India*'. In 1955, B.B. LAL found Sohan type of tools in Beas and Banganga Valleys in the Kangra District. His work is important as he relied extensively on river terraces for dating his findings. The mesolithic site of Birbhanpur near the Durgapur Railway on the bank of the Damodar river in the Burdwan District, West Bengal, was also discovered and excavated by B.B. LAL. R.V. JOSHI has published a useful report on palaeolithic sites in Damoh, Sagar and Hoshangabad in Madhya Pradesh. He has also surveyed the Malaprabha basin and noted some twenty one sites. K.V. SOUNDAR RAJAN has studied the stone tools at the sites of Nagarjunakonda and its neighbourhood.

Besides the Archaeological Survey of India, much important work was done by the educational institutions. In 1940, the Anthropological Department of the Calcutta University investigated the Palaeolithic site of Mayurbhanj in Orissa. There the valley of the Burhabalang river and its territories yielded a large collection of tools such as choppers, handaxes, cleavers and scrapers. D. SEN and research students of this Department have also worked on the pebbles and flake tools of Sirsa Valley in East Punjab, in the Narmada Valley in Madhya Pradesh and in Midnapur and Bankura in West Bengal.

The research workers of the Deccan College, Poona under the guidance of H.D. SANKALIA have done excellent work in different parts of India such as Gujarat, Maharashtra, Madhya Pradesh, Andhra, Orissa and Karnatak. In Gujarat, H.D. SANKALIA himself surveyed the rivers Sabarmati, Orsang, Mahi, Karjan, Bhadar, Bhajodi, etc., in order to discover stone tools. H.D. SANKALIA, S.B. DEO and others have explored the valleys of Maharashtra. On a stratified sequence established at Nevasa, H.D. SANKALIA made an interesting contribution by classifying the tools into Series I and Series II belonging to two ages and two

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cultures. He even classified the recent discovered blade-burin and scraper tools at different sites such as Bhimbetka, Renigutta, Gulbarga and Patne as Series III known ps Upper Palaeolithic. NISAR AHMAD, A.P. KHATRI and RAMESHWAR SINGH have respectively written on the Stone Age Cultures of the Upper Son Valley, Malwa and Palaeolithic Industries of North Bundelkhand in Madhya Pradesh. V.S. WAKANKAR discovered rock-shelters with paintings and occasionally with microlithic tools. V.N. MISRA has studied the Stone Age Cultures of Rajasthan, and he also excavated the microlithic site of Baghor in Rajasthan. G.C. MOHAPRTRA has worked on the Stone Age Cultures of Oriesa. K.D. BANERJEE is the author of the *Middle Palaeolithic Industries of the Deccan.* N. ISAAC, M.L.K. MURRAY and S.N. RAO have respectively attempted to write on the Stone Age Cultures of Kurnool, Chitoor and Nalgonda Districts in Andhra Pradesh. M. SESHARI's work is on the '*Stone Using Cultures of Prehistoric and Protohistoric Mysore*'. B. SUBBA RAO has written on the Stone Age Cultures of Bellary and R.S. Pappu has undertaken research on the Pleistocene Studies in the Upper Krishna Basin. In 1950, F.E. ZEUNER published his monograph entitled '*Stone Age and Pleistocene Chronology in Gujarat*' in which he described the environmental settings in the valleys of the Sabarmati, Mahi, Narmada and Godavari in Prehistoric times. He attempted to establish a sequence of climates in the Pleistocene by means of which human cultures could be dated. He was occasionally led to use typology for supplementing his findings.

G.R. SHARMA under the auspices of the Allahabad University excavated the famous microlithic sites of Lekhahia and Sarai Nahar Rai in Uttar Pradesh. T.N. KHAZANCHI gives information about the Neolithic Culture in Kashmir. The excavated sites such as Sangankallu by B. SUBBA RAO, Brahmagiri by R.E.M. WHEELER, Maski by B.K. THAPAR, Piklihal by F.R. ALLCHIN and T. Narsipur by M. SESHADRI enlighten us about Southern Neolithic Culture. A.H. DANI has tried to study the Neolithic Culture of Assam on the regional basis, but on the other hand, T.C. SHARMA gave the scientific classification of the entire Assamese collection typologically and technologically. Chirand, a Neolithic site of Bihar, excavated under the direction of B.P. SINHA, is important.

Excavations conducted by J.M. CASAL at Mundigak and Amri; AUREL STEIN'S exploratory tours in Baluchistan and the Indo-Iranian border land; exploration in Baluchistan by W.A. FAIRSERVIS; excavation in Baluchistan by H. HARGREAVES; N.G. MAJUMDAR'S exploration in Sind; F.A. KHAN'S excavation at Kotdiji and B.B. LAL and B.K. THAPAR'S excavation at Kalibangan throw welcome light on the pre-Harappan and Harappan cultures, and their extent. The excavations carried out at Mohenjodaro in Larkana District of Sind by JOHN MARSHALL, E.J.H. MACKAY and R.E.M. WHEELER; at Harappa by M.S. VATS; at Chanhudaro by E.J.H. MACKAY and at Lothal by S.R. RAO, and at other sites supply useful knowledge for the Harappan Culture.

Excavations were also carried out at the sites much as Ahar by H.D. SANKALIA and Gilund by B.B. LAL in Rajasthan; Maheshwar and Navdatoli by H.D. SANKALIA, Manoti and Avra in Mandsaur District by H.V. TRIVEDI, Eran by K.D. BAJPAI and Kayatha by V.S. WAKANKAR in Madhya Pradesh; Jorwe and Nevasa

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by H.D. SANKALIA, Songaon by S.B. DEO, Prakash by B.K. THAPAR, Daimbad and Bahal by M.N. DESHPANDE and Inamgaon by Z.D. ANSARI and M.K DHAVALIKAR in Northern Deccan; Brahmagiri by R.E.M. WHEELER, Maski by B.K. THAPAR, Piklihal and Utnur by F.R. ALLCHIN, Sangankallu by Z.D. ANSARI and M.S. NAGARAJA RAO, Tekkalkota and Hallur by NAGARAJA RAO, Kupgal by G.G. MAJUMDAR and S.N. RAJGURU and T. Narsipur by M. SESHADRI in South; Bargaon and Ambkheri by M.N. DESHPANDE, Atranjikhera by R.C. GAUR, Alamgirpur by Y.D. SHARMA and Hastinapur by B.B. LAL in Gangetic Doab; Lothal and Rangpur by S.R. RAO, Prabhas Patan and Rojadi by P.P. PANDYA, Desalpur by K.V. SOUNDAR RAJAN, and Somanath and Amra jointly by Department of Archaeology, Gujarat and M.S. University Baroda in Saurashtra; Chirand, Sonpur and Vaisali in Bihar by B.P. SINHA and his colleagues, and Pandu Rajar Dhibi by P.C. DAS GUPTA and Mahisdal, Nanur, Haripur and Tulsipur by R.P. DAS in West Bengal. All these give picture of Chalcolithic India.

N.R. BANERJEE has written a work '*The Iron Age of India*'. This age remained associated with Megalithic Culture. V.D. KRISHNASWAMI has published a paper on '*Megalithic types of south India*', and R.E.M. WHEELER on '*Brahmagiri and Chrndravalli Megalithic and other cultures in Mysore State*'. B.B. LAL studied the *graffiti* marks of the pottery from Harappan to Megalithic Period. D.P. AGARWAL has tried to make Prehistory and Protohistory somehow exact dating Middle Stone Age, Mesolithic, Neolithic, Pre-Harappan, Harappan, Chalcolithic and Megalithic sites by Carbon-14 method.

Recently some scholars have attempted to write works on Prehistory and Protohistory of India utilising this vast scattered archaeological material. B. SUBBA RAO made such a pioneering effort in his work '*The Personality of India*' (Ind. Ed. 1958). D.H. GORDON ond STUART PIGGOT have written respectively '*The Prehistoric Background of Indian Culture* (1958)' and '*Prehistoric India to 1000 B.C.* (1960)'. As by the discovery and excavation of new sites, the knowledge of this subject has been increasing so fast that these works seem to have become in some sense antidated. The proceedings of a seminar held under the auspices of the department of Archaeology, Deccan College, Poona on some of the important problems of Prehistory and Protohistory were published as '*Indian Prehistory*—1964' under the editorship of V.N. MISRA and M.S. MATE. B. ALLCHIN and RAYMOND puhlished the work '*The Birth of Indian Civilization*' (1968), and '*The Roots of Ancient India*' (1971), is the famous work of W.A. FAIRSERVIS. H.D. SANKALIA'S Second edition of the book *Prehistory and Protohistory in India and Pakistan* (1974) covering somehow uptodate knowledge of archaeological discoveries and excavations up to 1960 is a monumental work. Naturally these works on the subject of Prehistory and Protohistory no where deal with the Vedic Civilization which is considered to be the foundation of Indian Civilization. Vedic civilization seems to have remained a source of inspiration to the subsequent civilizations. Even some modern religious and social customs are traced from this civilization.

There are works which deal with Vedic Culture, but of course, the archaeological material has not been fully utilised by their authors. It is true that this vast archaeological material was not brought to light when some of these works were

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written. *The Cambridge History of India*, Vol. I edited by E.J. RAPSON deals with the history of ancient from the earliest times to about the middle of the first century A.D. P.L. BHARGAVA has tried to reconcile the Vedic and Puranic traditions, but not archaeological sources in order to reconstruct the history of India in the Vedic Age. In the '*Vedic Age*' edited by R.C. MAJUMDAR, archaeological materials have not been given the adequate treatment they deserve in relation to the Vedic sources. Besides much more material has been brought to light after the publication of this work. D.P. MISRA's monograph '*Studies in Protohistory of India*' is an attempt to interpret the proto-historical period of Indian history, mainly in the light of the traditional accounts preserved in Vedic and Puranic literature, and in the two epics, the *Rāmāyaṇa* and the *Mahābhārata*. This type of work may have its own value but not in line with the scientific approach as this subject is understood.

With the author's thankfulness to all the scholars mentioned above, it is submitted that he has made to establish certain conclusions which are new. He has tried to give due place both to the archaeological and literary sources in this work. He hopes that the book will be an addition to the field of knowledge.

The present work has been divided into seventeen chapters. In Chapter I, the meaning of Prehistory and Protohistory has been explained. In Chapter II, geological and geographical background has been discussed for the proper understanding of Prehistory and Protohistory of India. First a brief geological history of India along with physical divisions has been described. It has been pointed out how geological and geographical factors have influenced the Prehistory and Protohistory of India. The geographical knowledge of the present administrative units known as States is essential for the study of this subject. In Chapter III, the different sources, which have been drawn upon for writing of the work, have been critically discussed.

Chapter IV gives a general survey of the Lower Palaeolithic Culture in different parts of India with general characteristics. It is shown here that Sohan Culture is a part of Hand-axe Culture. The origin of this culture from Africa after comparing it with those of other countries has been discussed. Chapter V is concerned with the Middle Palaeolithic Culture of flake tools which are different from those of Lower Palaeolithic Culture from points of view of technique, typology, raw material and stratigraphy. Its distribution, climatic conditions and environments, fauna and flora, date and origin have been described. Chapter VI is related with the Upper Palaeolithic Culture which is distinguished by blade and burin tools which are specially found at different sites of the country such as Bhimbetka, Renigutta, Gulbarga and Patne. Its date and origin has also been discussed.

Chapter VII deals with Mesolithic Culture which differs from the cultures of Early Stone Ages, in technology, climate and other spheres. Tiny tools known as 'microliths' began to be made. The distribution of its sites, ecology, date and origin have also been discussed. Some of the rock-shelters and caves in the country particularly in Madhya Pradesh, Uttar Pradesh and other regions contain microliths and other paintings. The problem of its authors and dating is still controversial. Therefore it seems that nothing can be said positively about their authors. As far as the date is concerned, these paintings prove only the stage of culture but not the

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precise Mesolithic Age or earlier because tribal people with early traits of culture are noticed even today.

Chapter VIII is devoted to Neolithic Culture which is technologically characterized by ground and polished stone tools, and economically by domestication of animals and production of food. Besides Northern Neolithic Culture, Southern Neolithic Culture and Eastern Neolithic Culture along with their dates and origin have been described.

Chapter IX is devoted to Pre-Harappan Culture which is marked by the stage of transition from village to the fortified town, and the advent of metal. Chapter X deals with Harappan Culture which is distinguished by the origin of towns with elaborate drainage system and the invention of a script. Its extent, date, origin and authors, religions, social and economic conditions, and art have been discussed in the light of the new material discovered very recently. The end and the survival of this culture have also been described.

Chapter XI is concerned with the Chalcolithic culture of India marked by rural economy. At the Chalcolithic sites, a few objects of copper are found together with pottery. The chalcolithic cultures of different regions share the same food, economy and technology, but they differ in ceramic traditions because of environmental conditions. The copper hoards have also been discovered at some sites. The authors of the Chalcolithic Culture, and of the copper hoards have been discussed critically.

Chapter XII is related to Early Iron Age Cultures. Iron was found in association with the Painted Grey Ware, the Black-and-Red Ware and the Megalithic ware. The Painted Grey Ware Culture and the Megalithic Culture along with their authors have been discussed.

Chapter XIII deals with the Aryan problem, still highly controversial. It gives a detailed discussion of all the divergent theories regarding the original home of the Aryans and the date. According to the author, the date of Vedic Culture covers from 1200 B.C. to 600 B.C. It has also been pointed out that there were common elements between the Vedic and the Iranian Cultures.

Chapter XIV, which concerns the Rigvedic Age, the expansion of the Aryans and their settlements as tribes, has been dealt with. This chapter also throws light on their political, social, religious and economic conditions in India. Chapter XV is devoted to the Later Vedic Period which led to the tribal groupings and some new political divisions. This period is marked by certain notable changes in political, social, economic and religious conditions of the Aryans.

Chapter XVI deals with the traditional history. Scholars like F.E. PARGITER, A.D. PUSALKER, P.L. BHARGAVA and D.P. MISRA have tried to reconstruct the traditional history on the basis of the *Vedas*, the epics and the *Purāṇas*. This traditional history cannot be wholly relied upon unless corroborated by some independent contemporary evidence.

Chapter XVII deals with ancient literary traditions and archaeological cultures. An attempt has been made to interpret critically the account based on Vedic and Puranic data archaeologically. The author does not agree with the views of some veteran scholars like H.D. SANKALIA and A.S. ALTEKAR. H.D. SANKALIA regards

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all the proto-historic phases from Pre-Harappan down to Painted Grey Ware belonging to Aryan Civilization. A S. Altekar considers Chalcolithic Culture (1800 B.C.—1000 B.C.) to be of the Aryans. The author is of the view that the Aryans were the authors of the Painted Grey Ware Culture and the Black and Red Ware Culture (1200 B.C.—600 B.C.) which were associated with iron industry.

I owe an immense debt to H.V. TRIVEDI, former Deputy Director of Archaeology, Madhya Pradesh Government, who has taken great pains in reading the manuscript. I am indebted to S.D. MISRA, Head of the Geography Department, Madhav College, Ujjain and the late S. SUBBARAO, Reader, School of Studies in Geology, Vikram University, Ujjain, for guidance and valuable suggestions in writing the Chapter 'Geological and Geographical Background'. I am highly obliged to K.D. BAJPAI, Visiting Professor, Sagar University, Sagar who looked into some portion of this work. My thanks are also due to ADITYA NARAIN, Deputy Keeper, National Museum, New Delhi and S.M. PAHADIA, Lecturer in English, Khandwa for going through this book. I am also grateful to K.S. RAMACHANDRAM who gave valuable opinion regarding this work.

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ABBREVIATIONS

ABORI	*Annals of the Bhàndarkar Oriental Research Institute*, Poona.
AI	*Ancient India*, New Delhi.
AIHT	*Ancient Indian Historical Tradition*, by F.E. PARGITER.
AP	*Aryan Path*, Bombay.
APH	*Asian Perspective*, Hongkong, Honolulu.
APAMNH	*Anthropological Papers of the American Museum of Natural History*, New York.
ASS	*Ānandāśrama Sanskrit Series*, Poona.
BDCRI	*Bulletin of the Deccan College Research Institute*, Poona.
BP	Before Present.
CHI	*Cambridge History of India*, ed. by RAPSON, E.J.
COAI	*Chronology of Ancient India* by PRADHAN, S.
Curr. Sci.	*Current Science*, Banglore.
DGOI	*Geology of India* by DEY, A.K.
EHI	*Early History of India* by SMITH, V.A.
EMN	*The Excavations at Maheshwar and Navdatoli*, Poona.
E.W.	*East and West*, Rome.
I.Ar. or I.A.R.	*Indian Archaeology*—A Review, Delhi.
IHQ	*Indian Historical Quarterly*, Calcutta.
IIVTA	*India in the Vedic Age*, by Bhargava, P.L.
IP	*Indian Prehistory*, Poona, 1964.
ISC	*Indian Science Congress*, Calcutta.
JAOS	*Journal of the American Oriental Society*, New York.
Jour. of Andhra Hist. Res. Soc.	*Journal of the Andhra Historical Research Society*, Rajahmundry.
JBORS	*Journal of the Bihar and Orissa Research Society*, Patna.
JBRS	*Journal of the Bihar Research Society*, Patna.
JGSI	*Journal of the Geological Society of India*, Bangalore.
JISOA	*Journal of the Indian Society of Oriental Art*, Calcutta.
JMPIP	*Journal of the Madhya Pradesh Itihasa Parishad*, Bhopal.
JOI	*Journal of the Oriental Institute*, Baroda.
JRAI	*Journal of the Royal Anthropological Institute*, London.
MASI	*Memoirs of the Archaeological Survey of India*, New Delhi.
MI	*Man in India*, Ranchi.
MIC	*Mohenjo-daro and the Indus Civilization* by MARSHALL, SIR JOHN.

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MMARDV	*Mahābhārata Myth and Reality, Different Views*, ed. by GUPTA, S.P. and RAMACHANDRAN, S.K.
MNRISM	*Natural Regions of the Indian sub-continent*, Manuscript by MISRA, S.D.
PHAI	*Political History of Ancient India*, by RAYCHAUDHURI, H.C.
PIHC	*Proceedings of the Indian History Congress.*
POC	*Proceedings of the All India Oriental Conference.*
SBE	Sacred Books of the East.
SITPHOI	*Studies in the Protohistory of India*, by MISRA, D.P.
SPPIP	*Prehistory and Protohistory in India and Pakistan*, by SANKALIA, H.D.
TVA	*The Vedic Age*, ed. by MAJUMDAR, R.C. and PUSALKER, A.D.
ZDMG	*Zeitschrift der Deutschen Morgenlandischen Gesselschaft.*

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CHAPTER I

MEANING OF PREHISTORY AND PROTOHISTORY

The history of India before the sixth century B.C. is known as Prehistory and Protohistory. Prehistory deals with Early Stone Ages when man was a savage, a hunter and a nomad. The period between history and Prehistory is called Protohistory which is characterised by the traits of civilization, such as domestication of animals, introduction of agriculture, pottery, metallurgy, monumental architecture, village and town. No doubt even much earlier than the sixth century B.C., a script engraved on seals, pottery, etc., is known to have existed during the Harappan period (*c.* 2350 B.C.—1750 B.C.), but it has not yet been deciphered. The moment it is deciphered, India will enter the arena of history from Protohistory. The study of Prehistory and Protohistory gives an idea of the evolution and growth of Indian Culture.

PREHISTORY

Prehistory comprises the different Early Stone Ages distinguished by certain peculiarities when man was barbarous in the stage of food gathering. Archaeology is specially concerned with Prehistory, as it studies tools of the primitive man. Besides, with the help of different interdisciplinary sciences, such as Geology, Botany, Zoology, Anthropology, Ethnology, Chemistry and Physics, the knowledge of Prehistory may also be attained.

EARLY STONE AGE

Prehistory starts with the Early Stone Age when man is supposed to make his debut in India, and gradually made stone tools for his security and living. These early tools made of quartzite are crude, and they can be classified into handaxes (Madras) and pebble tools (Sohan). People of Early Stone Age lived along the banks of the rivers and at the foot of low hills for raw material in order to prepare the tools. Except Kerala and Sind, the whole of India has given evidence of the Early Stone Age. The number of *Bos* and *Elephas* was larger in comparison with other animals. The time and duration of this Early Stone Age in India may be placed between Lower Pleistocene and Upper Pleistocene.

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MIDDLE STONE AGE AND UPPER PALAEOLITHIC AGE

Man continued to improve his stone tools as necessitated by his environments and ecology. Taking the technique, typology, raw material and stratigraphy into consideration, the Middle Stone Age is different from the preceding one. These tools are of flake nature, and they are smaller than those of the Early Stone Age. These tools are made of raw material just as agate, chert, jasper and chalcedony. The period of the Middle Stone Age is placed between *c.* 50,000 and 20,000 B.C. The Upper Palaeolithic Age is concerned with blades and burin tools. It falls within the time bracket of *c.* 20,000—10,000 B.C.

MESOLITHIC AGE

Mesolithic Age is different from the earlier ones in climate, technology and other spheres. The old glacial conditions had more or less vanished and the dry period had started. With the climatic changes, the flora and fauna altered as also the implements. Technologically, tiny tools known as 'microliths', highly improved upon the earlier ones, were devised. There is the continuation of the palaeolithic economy, but the emphasis shifted from big game to small game hunting. The occupation of sites was more extensive and intensive than those of the Earlier Stone Ages. This Mesolithic Age may be placed between *c.* 8000 and 2000 B.C. Inspite of these changes and improvements, man still remained a savage and a barbarian. Hence, this Mesolithic Age also comes under the study of Prehistory.

PROTOHISTORY

Protohistory is concerned with those traits which make up civilization. Man was gradually becoming more and more civilized because he started to cultivate land, to domesticate animals, to manufacture pottery and to use metal. One important characteristic of the Protohistory is that there was absence of writing. Even if it was in existence, it has not yet been deciphered and hence, it is insignificant. It covers the study of Neolithic Culture, Pre-Harappan Culture, Harappan Culture and Chalcolithic Cultures. It also deals with the Rigvedic Culture and the Later Vedic Culture.

NEOLITHIC CULTURE (*c.* 4000—1000 B.C.)

Technologically, Neolithic Culture is a stone culture because polished and ground stone tools were made and used. Even then, this culture is related to Protohistory because there was transition from food gathering to food production. Man started to domesticate animals and to manufacture pottery. He no longer remained a hunter moving from place to place, but started to live at a fixed place in an organized community for the purpore of cultivation.

PRE-HARAPPAN CULTURE (*c.* 2700—2400 B.C.)

Pre-Harappan Culture comes under the purview of Protohistory because it gave birth to some new traits which led to the threshhold of urbanization. These are fortification wall, houses, metal and other objects.

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HARAPPAN CULTURE (*c.* 2350 to 1750 B.C.)

The authors of the Harappan Culture knew some script but it has not yet been deciphered. Therefore, Protohistory deals with this culture. Besides script, there are some other remarkable features of this culture. Towns with elaborate planing having wide streets and remarkable drainage system came into existence. Trade and commerce flourished, and a well regulated system of weights and measures for the first time appears to have come into existence. Different types of copper and bronze artifacts were discovered. This culture is epoch making in the sense people with their crafts, knowledge and religious beliefs influenced the subsequent civilizations and its survivals are noticed in different spheres.

CHALCOLITHIC CULTURE (*c.* 1750—1000 B.C.)

People of Chalcolithic Culture appear to be illiterate as no evidence of their writing is available so far. The use of copper is the leading characteristic of Chalcolithic Culture along with pottery. People lived generally in mud houses of villages. They were farmers and cultivated land and domesticated animals. Though the Chalcolithic Cultures of different regions share a common level of food economy and technology, they have their own peculiar features and they differ in ceramic traditions because of environmental conditions.

IRON AGE CULTURE (*c.* 1100—600 B.C.)

Protohistory is connected with Iron Age Culture which remained associated with Painted Grey Ware, Black-and-Red Ware and Megalithic pottery during the early period. *Graffiti* marks are found engraved on the Megalithic Pottery but up till now their significance is not known. The use of iron was an important stage in the technological advancement. It brought about a revolution in the economic condition of the people. It played a vital part in colonizing the dense forest areas like that of the Gangetic *Doab*. A large number of settlements in the form of villages were established.

RIGVEDIC AND LATER VEDIC CULTURE

Protohistory is concerned with the Rigvedic Culture as well as the Later Vedic Culture. The Aryans in India composed a vast Vedic literature, but it is not definitely dated. There is a controversy among scholars regarding the system of writing during the Vedic Age. Most of the indologists are of the opinion that the Aryans did not know writing but practised memorising this literature. Some scholars such as G.H. OJHA[1], R.B. PANDEY[2] and D.R. BHANDARKAR[3] advanced only some negative and indirect evidence for the existence of writing during the Vedic Period. Most of our social, religious and economic values have roots and inspiration in Vedic literature. It provided some basis for the subsequent Brahmanical religions and modern Hinduism. Some traditions embodied in the *Purāṇas* are also helpful for the study of Protohistory.

1. *Prāchīnalipimālā*, p. 12.
2. *Indian Palaeography*, p. 15.
3. *Sir Asutosh Mookerji Silver Jubilee, Vol.* III, pp. 494 ff.

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CHAPTER II

GEOLOGICAL AND GEOGRAPHICAL BACKGROUND

For proper understanding of Prehistory and Protohistory of the Indian sub-continent, the knowledge of its geological and geographical background is essential. This sub-continent acquired the present form after a very long time passing through different Geological Eras, and each Era having left its own characteristic features. The Prehistory is concerned with the Stone Age Cultures which are covered by the Geological Periods of Pleistocene and Holocene. Both these Geological Periods are epoch-making in human history because some unusual changes took place. The *Homo Sapiens* originated, and as far as the physical features are concerned, the Himalayas took the final form, the Indo-Gangetic plains were formed, some lakes and the Thar desert appeared. These physical features gradually became more or less stable. During the Holocene period, glacial conditions disappeared, and there was not so much change in the climate. These physical changes have considerably influenced the Prehistory and Protohistory of India.

A BRIEF GEOLOGICAL HISTORY OF INDIA

The Earth was born as a separate planet from the solar system about 5000 million years ago. It took birth as a gaseous nebulae, which took a few million years to evolve itself into the present form of layered structure—the atmosphere, the hydrosphere and the lithosphere with further layers of differentiated rock-masses. Earth is a dynamic body; it has been revolving around the Sun, the Parent body, and has been undergoing changes in continuity. The geological history of the Earth involves several interesting episodes; they are represented by the natural events like earthquakes, volcanic activity, changes in the distribution of land and water, mountain building activity, uplift of the ocean basins and sinking of the continental areas. All these are known as diastrophic changes. In addition to the above, water, wind and glaciers have been active as natural agents causing weathering of rocks, erosion, transportation of material and deposition throughout the period, although the resulting changes are slow.

PRE-CAMBRIAN PERIOD

The Pre-Cambrian Period[1] gave rise to the first seas and oceans. With the advent of seas and oceans, rains, winds, etc., started. In general, this period can be

1. *DGOI*, pp 49-65.

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divided into two major divisions—(1) Archaean or Archaeozoic, and (2) Protozoic or Purana. Protozoic or Purana is further divided into the Cuddapahs and the Vindhyas.

The ancient mountain chains now seen as eroded basement rocks originated during this period. These old rocks are found at least in five major regions of India and their consolidation took place in cycles. The Aravalli chain in Rajasthan, which may date back to an age of 3500 million years, is the most ancient in India. Some of its rocks were finally metamorphosed even around 1000 million years ago. The southern part of the Peninsula was occupied by the rocks of Dharwar system which covered the period from 3100 to 2300 million years. The Iron Ore Series, best known in Bihar and Orissa, were deposited between 2500 and 2100 million years ago. The Eastern Ghats of Orissa and Andhra Pradesh, where the chief rock types known by the names Khondalites and Charnockites, were formed in the time interval of 2500 to 2100 million years. Bundelkhand region occupied by the Bundelkhand gneiss was consolidated more than 2500 million years ago. The metamorphic rocks of the Satpura Basin running through Maharashtra, Madhya Pradesh, Bihar and Orissa were formed between 1000 and 860 million years back. It is futile to correlate these different rocks because they represent the closing phases of different mountain building cycles.

The outcrop of the earlier Purana rock known by various local names may be of the age *i.e.*, 1400-600 million years. The system typically developed in a crescent-shaped basin in the Cuddapah and adjoining districts of Andhra Pradesh. It is also found in Madhya Pradesh, Orissa, Rajasthan and the Himalayas. The Vindhyan system of rocks named after the Vindhyan range are younger than the Cuddapahs. The rocks of this system occur in crescent shaped or semi-circular basins covering large areas in Madhya Pradesh, Rajasthan and Bihar. In south India, these rocks are found as isolated patches and designated as Kurnool system. With the end of the Vindhyan period, all major mountain building movements ceased in Peninsular India.

The mountains and hills formed by these different rocks provided raw material in the form of stone for the manufacture of tools, implements, etc., during Stone Age to men. It was, therefore, but natural that they selected the places for habitation near mountains and hills. Afterwards, these places provided minerals which were used for different purposes.

PALAEOZOIC ERA

The period from 500 to 225 million years is called the Palaeozoic (Old) era[1]. Now many rocks contain abundant fossils which make correlation of rocks possible in different areas. The Palaeozoic era is divided into two divisions: (1) Lower or Older Palaeozoic and (2) Upper or Newer Palaeozoic. The Lower Palaeozoic is characterised by the abundance of trilobites, graptolites and brachiopods. In the Newer Palaeozoic, Corals, Crinoids and Cephalopods became more numerous.

1. *DGOI*, pp. 65-76.

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The Palaeozoic Era is famous, for the advance of the sea known as 'Tethys' over the area now occupied by the Himalayas and the Indo-Gangetic plains and the beginning of the Gondwana system. This separated a northern continent of which the Asiatic part known as Angaraland from a southern continent called Gondwana land consisting of India, South Africa, South America, Australia and Antarctica. As the similarity of the rocks and fossils is so striking that many geologists consider these countries as belonging to a great landmass. It is also held by some scholars that there might be also narrow land bridges which permitted land animals and plants to migrate into these distant countries. The former view is now supported by the latest scientific works.

The Peninsula, which had remained a stable landmass since the Vindhyan period, suffered from a different kind of crustal movements than the Himalayan region. Here the mid-Carboniferous earth-stresses resulted in the development of a series of sunken troughs along the present day valleys of the Damodar-Son, Mahanadi and Godavari in which fresh water sediments younger than the Vindhyan system were deposited.

MESOZOIC ERA

The period from 70 million to 225 million years ago is called the Mesozoic (Middle life)[1]. Like the Medieval history of mankind, it is transitional between the old (Palaeozoic) and new (Cenozoic) eras. As there was dominance of reptiles, the Mesozoic is called the Age of Reptiles. The Mesozoic era is divided into three periods, the Triassic, the Jurassic and the Cretaceous.

The gradual disruption of the Gondwana land is the important event of this Era. Towards the close of the Jurassic, South America separated from Africa, while India, Australia and perhaps Antarctica also started moving eastwards. It was not until the close of the Cretaceous that Africa, India and Australia parted each other's company completely. The spreading of the seas in different times over the Indo-African part of Gondwana land can be best accounted for by the shallowing of the Tethys. By Early Cretaceous Times, the sediments in the Himalayan attained much thickness and the internal inequilibrium reached its climax. Numerous cracks opened in Peninsular India breaking through the earlier rocks. Along these cracks, basaltic lavas of the Deccan trap sought the suface in late Cretaceous and early Eocene times. Practically, the whole of Maharashtra, a greater part of the Western half of Madhya Pradesh, parts of Gujarat and small portions of Andhra Pradesh are covered by the Deccan trap lava flows.

CENOZOIC ERA

The Cainozoic Era[1] is divided into two periods the Tertiary and Quarternary. The Tertiary Period is sub-divided into five epochs: (1) Palaeocene (ancient recent), (2) Eocene epoch (dawn recent), (3) Oligocene epoch (little recent), (4) Miocene epoch (less recent) and (5) Pliocene epoch. Quarternary Period is also sub-divided into

1. *DGOI*, pp. 65-76.

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two epochs: (1) Pleistocene epoch (most recent) and (2) Recent Epoch. The Earth has acquired its present features—shapes of continents, Great mountain systems, the courses of the rivers, the great plains, the climatic zones, the distribution of plants and aninals in the Cenozoic era.

Tertiary

The Tertiary has been called the 'Age of the Mammals' because of the great abundance of the fossil remains of these animals in the deposits of this period. These animals gained their supremacy because of their gradual development of brain enabling them to retain impression and to think independently and act intelligently.

The events of the late Cretaceous Period continued into the Tertiary. The sea withdrew from various parts of the earth's surface, leaving the Tethys to shrink gradually and later to break up. The Tethys held its sway over the countries bordering the present day Mediterranean Sea. Through the Middle East, it spread into Pakistan, Western India, Kashmir and in the main region of the Himalayas and beyond. The earth's movements, which are noticed during the Cretacean Period, became the most outstanding event of this period. They raised the Himalayas like other movements from the surface. With the uplift of land and of the Himalayas and associated ranges, the Sind-Baluchistan and the Assam-Burma Gulfs were pushed back.

In the depression formed in front of the rising Himalayas, a combination of rapid uplift subsidence caused the deposition of 4500 to 6000 metres of fresh water sediments. This great thickness of terrestorial sediments derived from the erosion of the rising Himalayas are known as the Siwalik system of India. It extends continuously along the foot of the Himalayas from Brahmaputra Valley on the east to the Potwar Plateau and the Bhannu Plains on the west in Pakistan. The fauna records the sedimentation from Middle Miocene to Lower Pleistocene and has yielded a variety of fossils showing a wide range of environment from humid forest conditions to aridity. The Siwalik system has been divided into the following three divisions—(1) Upper Siwaliks, (2) Middle Siwaliks and (3) Lower Siwaliks.

During the later Tertiary ages, the old drainage lines of northern India have been radically altered and a new drainage system superimposed. A river named Siwalik flowed from the head of the Sind Gulf to the Punjab and thence along the foot of the embryonic Himalayan chains, through Simla and Nainital to Assam. Post-Siwalik earth movements in North-West Punjab brought about a dismemberment of the river system into three subsidiary systems: (1) the present Indus from north-west Hazara, (2) the five Punjab tributary rivers of the Indus and (3) the rivers belonging to the Ganges system which finally took a south-easterly course. The separate upper part of the Siwalik River became the modern Ganges which in course of time converted the Yamuna into its own affluent. The transverse Himalayan rivers, the Alaknanda, Karnali, Gandak and Kosi are really amongst oldest watercourses of north India, continued to discharge their waters into this new river. The Punjab portion of the present Jhelum, Chenab, Ravi, Beas, and Sutlej have

1. *DGOI*, pp. 113-136.

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originated from the uplift of the topmost stage of the Siwalik system and subsequent to the severance of the Indus from the Ganges.[1]

Pleistocene Epoch of Quarterly Period

The Pleistocene[2] epoch of Quarternary Period of the Cenozoic era is characterized by new features, and at the same time, it provides material specially for the study of Prehistory and Protohistory of India.

(*A*) *Glacial Conditions*

The Pleistocene Age is characterized by the introduction of the glacial conditions. During the Pleistocene time, there was a development of great ice-sheets in the northern Europe, Siberia, North America, Antarctica, and in high mountains such as the Alps, the Himalayas, etc. From time to time, warmer conditions returned, as glaciers retreated several times during the glacial period. The periods, during which the glaciers retreated, are known as Inter-glacial periods. During glacial periods, the sea level was lower than that of the Inter-glacial periods. On the basis of advance and retreat of glaciers, the Pleistocene can be divided into four Glacial and three Inter-glacial Periods.

(*B*) *Appearance of Man*

The Pleistocene epoch saw the appearance of man—*Homo-Sapiens*. The name is derived from Latin words *homo* meaning man and *sapien* wise. Man never descended either from monkeys or from apes though it is likely that all these have descended from common ancestors like primates of the Eocene epoch. Fossil remains of man are rather fragmantary and scarce. It is believed that Africa was the original birth place of man for most of Africa escaped devastation of the Pleistocene glaciation. The climate was favourable for the living of man. The earliest fossil remains of man have also been discovered, and they are named Australopithecus and Rhodesians. The remains of man in Germany are known Heidelberg man after the place name Heidelberg, and Neanderthal man after Neanderthal Valley in Germany. Pithecanthropus erectus and Pithecanthropus Pekinensis are found to be associated with fossil remains of Pleistocene mammals respectively in Java and China. Cro Magnon man was discovered from a rock-sheller of Cro Magnon in France. In India, no human fossils of the Pleistocene Age have so far been found though stone tools are available at various places. The Siwaliks have, however, yielded fossil teeth of some apes.

(*C*) *Uplift of the Himalayas*

The uplift of the Himalayas has taken place in four major phases. The earliest phase was at the close of the Eocene but the last and final uplift took place in the Pleistocene. Though the Himalayan mountain chain is young, many of its rivers such as the Indus, the Ganges and the Brahmaputra are older than it. These rivers, during the process of mountain formation by the folding and uplift of the bed rocks,

1. *TVA*, pp. 86-87.
2. *DGOI*, pp. 137-157; *TVA*, pp. 81-90.

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kept very much to their old channels so that the erosion of the valley kept pace with the elevation of the mountains. The rivers have, therefore, developed deep transverse gorges that are a characteristic feature of the Himalayan Valleys.

(*D*) *Formation of Indo-Gangetic Plain*

It was during the Pleistocene epoch that Indo-Gangetic Plain was formed by the alluvial deposits brought down by the rivers. These deposits, apart from their contents of gravel, sand, silt and clay do not contain any mineral resources, but they have made the plains one of the most fertile regions of the world. Its soils are generally easily cultivated and also rapidly respond to irrigation and manuring. The extensive alluvial tract of Gujarat on the West Coast is of the same age, though quite unrelated to the Indo-Gangetic system. The alluvial plains of the Narmada and the Tapti are much older than those of the Indo-Gangetic Plains.

(*E*) *Thar Desert*

A great sandy tract known as the Thar Desert without any water lying between the Indus and the Aravalli range belongs to the time between Pleistocene and Recent Age. It owes its origin from the accumulation of wind blown sand from the Rann of Kutch and also from the disintegration of local rocks caused by the great diurnal variation of temperatures. These conditions became established during the Pleistocene glaciation when the monsoons were deflected with the complete withdrawal of the sea from the Cambay, Ahmedabad, Thar region, the final uplift of the Himalayas and the disappearance of the Siwalik river. In the region to the west of the Aravallis, there is no obstruction to catch the monsoon until the Himalayan foothills are reached.

(*F*) *Lakes*

Some of the lakes of India are of the Pleistocene Age. One of them is Karewas located in Kashmir. The deposits known as Karewas are essentially Pleistocene in age, and are partly lacustrine and partly fluviatile. They were deposited in a lake between the Great Himalayas on the north-east and the Pir Panjal on the south-west and are composed of shales with some lignite below and alternating beds of clay, silt and sands above.

(*G*) *Laterite and other Deposits*

Laterite is a typical product of tropical weathering. It is a peculiarly reddish or mottled vesicular clayey ferruginous rock, pisolitic or massive, is formed as a superficial alternation of rocks in regions subjected to monsoon conditions, that is, to alternately wet and dry seasons. It is of wide distribution in the Peninsular India from Assam to Cape Comorin and occurs dominantly as cappings on Plateau highlands. In India, bauxite, the chief ore of aluminium, is found to be associated with laterite in Bihar, Madhya Pradesh, Maharashtra, Karnataka and Tamilnadu. Many deposits of iron and manganese are of lateritic origin. The calcareous group of rocks known as Porbander Stone in Gujarat is of Pleistocene Age, having been deposited by the wind. Some of the raised lime-shell deposits along the coast of India are also of the Pleistocene Age.

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PHYSICAL DIVISIONS OF INDIA

It seems that while dealing with the Prehistory and Protohistory of India, it is desirable to include the borderland between Iran and India because culturally and politically the region was not so much different from north India. The cultural trends from this borderland migrated to north India. VINCENT SMITH in '*Early History of India*' defined Ancient India which includes Gedrosia, Arachosia, Aria and Paropanisadae. These have been identified respectively with Baluchistan, Kandahar, Herat and Kabul. Leaving aside the north-west, the Indian sub-continent is separated from the rest of Asia by mountain wall and the sea. Geologically and geographically, it may be sub-divided into three physical divisions: (1) Peninsular region, (2) the Himalayan Mountains and their extensions, and (3) Indo Gangetic Plains.

PENINSULAR REGION

Peninsular region is ancient India in the geological sense.[1] This region, which is occupied by the Great Indian Plateau, is the part of the old landmass called the Gondwana land. It is best represented by a mass of crystalline rocks that stretch from Cape Comorin to Bihar in north, which outcrop near Udaipur in Rajasthan, and which form the distinctive topography of Bundelkhand. The rocks, their make up, and above all, the common sequence of layers into which they were originally laid hundreds of millions of years ago suggest that they were once together.

The Narmada Valley divides this Peninsular India in geographical sense into two: (1) The Central Indian Plateau and (2) the Deccan Plateau. The Central Indian Plateau is bounded by the Aravallis in the north-west and by the Vindhyas in the south. These low old mountains form the sharp edges of the Central Indian Plateau. The third side of this triangular Plateau is less marked. It gradually slopes towards the plain of the Ganges into which it merges. This Plateau extends from west to east. Its further extensions in the east are locally known as Bundelkhand and Baghelkhand in southern Uttar Pradesh and Chota Nagpur in southern Bihar. Narmada and Tapti are the two main rivers which drain this region.

The Deccan Plateau is bounded by the Satpura and its off-shoots in the north. It has a very sharp edge all along the west, consisting of the Sahyadri, the Nilgiri, the Anamalai, and the Cardamon Hills. Overlooking the Arabian Sea, they run parallel to the coast. The average height of the Western Ghats is more towards the south. Anai Mudi in Kerala with an elevation of 2,695 meters is the highest peak of Peninsular India. The Deccan Plateau gently slopes towards the east. Unlike the western edge, the eastern borders of the Deccan Plateau is less marked and is widely broken. The Eastern Ghats, consisting of discontinuous low hills, are locally known as Mahendragiri. The north-western part of the Deccan Plateau is made of the lava flows or the igneous rock called basalt. The Mahandi, the Godavari, the Krishna and the Kaveri are the main rivers of this Plateau.

The Deccan Plateau is flanked by the narrow coastal plains along the Arabian sea and Bay of Bengal. The Western Coastal Plain is narrow and uneven, greatly

1. W.A. Fairservis, *The Roots of Ancient India*, p.3.

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dissected by numerous fast-flowing streams and rivers. It, however, becomes very wide, on compassing the plains of Gujarat in the north. It has estuaries in the north and lagoons and backwaters in the south, particularly in beautiful Kerala. The Coastal plain of the eastern coast is relatively wide and more level. It includes some of the most fertile and watered deltas.

THE GREAT MOUNTAINS WALL OF THE NORTH

There is an arch shaped mountain chain all along the northern frontiers of India, Nepal and Bhutan. The mountain chain begins with the Pamir knot in the north-west and the junction of the Himalayas and the *Pūrvāchala* in the north-east. The width of the mountainous belt varies between 150 and 400 kilometres. This mountain chain separates the region from the rest of Asia. The mountains Kirthar, Sulaiman and Hindukush are located in North West India. The Karakoram mountains stretch between the Pamir knot in the north-west and the Indus in Jammu and Kashmir in the south-east. Broadly the Himalayas consist of three parallel ranges—the Himadri, the Himachal, and the Siwaliks—from north to south. The Himadri or the Greater Himalayas is the highest of all. Mount Everest of the Himalayas is the world's highest peak with an altitude of 8,848 metre above sea level. The range south of the Himadri is known as Himachal. Besides the main range, it includes spurs and dissected uplands. The southernmost range of the Himalayas is the Siwaliks.

The Himalayas are generally divided into western, central and eastern Himalayas. The western Himalayas are confined to Kashmir and Himachal Pradesh. The Central Himalayas extend over northern Uttar Pradesh and Nepal. The eastern Himalayas are spread over north-west Bengal, Sikkim, Bhutan and Arunachal Pradesh. There are some gaps in a mountain range on the north-west providing a natural route across. They are called passes—the Khyber, the Bolan, the Karakoram, the Shipkila, the Nathula and the Bomdila. The *Pūrvāchala* are the mountains of the east located as they are in the north-eastern part of the country; they are not as tall or as spectacular as the Himalayas. These mountains consist of Patkai Bum and the Naga Hills in the north, Garo, Khasi and Jaintia lie in the centre, and the Mizo and Lushai Hills are in the south.

THE GREAT PLAINS

The Indus and the Ganga-Brahmaputra basins form one single plain covering almost the entire northern part of the country. It is one of the most extensive and fertile plains of the world. It is made of the alluvium, *i.e.*, fine silt brought down by the rivers. Ganga and Yamuna together form the Great Northern Plains. These two river systems drain the most of the northern Plains. The Ganga-Brahmaputra basin is the larger of the two. Chambal, Kali Sind and Betwa are the tributaries of the Yamuna. They rise on the Malwa Plateau draining parts of Madhya Pradesh, Rajasthan and southern Uttar Pradesh. Yamuna is the major tributary of the Ganga. Son and Damodar join Ganga after draining southern Bihar and the Chota Nagpur Plateau.

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INFLUENCE ON PREHISTORY AND PROTOHISTORY

Geological and geographical factors have considerably influenced the Prehistory and Protohistory of India. During the Prehistoric times, man, being a savage, was much dependent upon nature for his survival and existence. Even when man gradually became more and more civilized during Protohistoric times, physical environments continued to influence but not so much in comparison with the earlier times. This influence is manifested in different ways.

Man of Early Stone Ages (*c.* 5,00,000 B.P. to 10,000 B.P.) favoured the habitation on foothills and open plateaus for raw material in order to manufacture tools and implements; on the river banks for availability of water, and on edge of forests for game and edible roots and fruits. They manufactured their tools of quartzite, jasper, agate, cherts, chalcedony, etc. They avoided thick forests and higher altitudes. The discovery of a large number of tools at main sites in different parts of India gives an idea of their habitation. The Sohan Valley in Potwar region of West Punjab; Sirsa, Beas and Ban Ganga Valleys in East Punjab; Chitor and Nagari in South-eastern Rajasthan; Sabarmati in Gujarat; Singrauli basin in Mirzapur District of U.P.; Singhbhum District in South Bihar; Sisunia hill in District Bankura, West Bengal; Kamarpal and Kuliana in Orissa; Narasimhapura and Hoshangabad of Narmada Valley in Madhya Pradesh; Nasik and Nevasa in Maharashtra; Kurnool, Giddalur, Kumarpudi and Nagarjunakonda in Andhra Pradesh; Angawadi and Nitur in Karnataka and Chingleput District, Kortalayar Valley in Tamilnadu are the main sites of their habitations. In the desert area of Rajasthan, only a few sites of Middle Palaeolithic Age (*c.* 50,000 B.P. to 20,000 B.P.) have been discovered. There are only a few sites of the tools of Early Stone Age because Indo-Gangetic-*Doab* seems to have been thickly forested at that time. In Sind and Kerala, no tools of Early men have so far been discovered. The population of men of the South during the Early Stone Age was denser than that of north India. This conculsion is inferred from a large number of Early Stone Age tools as well as sites discovered in south India.

There were four glacial and three inter-glacial periods in Kashmir and Punjab during the Early Stone Ages. Perhaps corresponding to these cold and warm phases in Kashmir and Punjab, there were wet and dry phases in the remaining subcontinent of India. These climatic changes had considerable effect on the humans, animals and plants of those times. These two regions with different climates must have produced different ecological species. Men and animals seem to have migrated towards South with alternating phases of hot and cold. Generally these two different regions had two different types of stone tools *i.e.*, pebble tools called Sohan in the Punjab, and handaxes called Madras in the South. Stone from the rocks and hills formed during the different geological Eras were available in the South for the manufacture of tools and implements.

The Mesolithic Age (*c.* 8000 B.C. to 2,000 B.C.) covered by the geological Age known as Holocene was different from the Early Stone Ages. The old glacial conditions had more or less gone and the dry period had started. These climatic changes have influenced the surroundings of men. The flora and fauna altered, as also the implements. Technically tiny tools known as 'microliths', highly improved upon

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the earlier ones were devised. There is the continuation of the Palaeolithic economy, but the emphasis shifted from big game to small game. The occupation of sites was more extensive and intensive than the preceding Stone Ages. The whole Vindhyan range from west to east seems to be the prolific source of microliths. Taking into the consideration the raw material and environment, these mesolithic sites may be divided into following types—(1) Open rocky areas, (2) Sandy areas, (3) Coastal areas, (4) Caves and rock-shelters, and (5) river banks. A number of rock-shelters and caves have been discovered in Madhya Pradesh and Mirzapur region of Uttar Pradesh. There is also a group of small caves (Billa Surgam) near Banganapalli in the Kurnool District of the South. Mesolithic men used to take shelter in these rock-shelters and caves in which their tools have been discovered.

The Kashmir Valley has given the evidence of ground and polished stones of the Neolithic Age (*c.* 4,000 B.C. to 2,000 B.C.). Karewa terraces have given inferences of human habitation of this period. The pitd-wellings were cut out into Karewa silt terrace for dwelling purposes. Most of the tools of southern India of this age are on trappoid or basaltic rock. In Assam, the chief material used for the manufacture of such tools was dolerite in the Garo Hills, green stone in the Naga Hills and sandstone in the North Cachar and Kamrup Districts.

The mountainous and rocky region of south India gave origin to the peculiar burial, technically known as Megalithic system. It originated in about the seventh century B.C. Megalith means a large stone. This type of monument fulfilled a funerary or commemmorative or religious function. The south Indian Megalithic complex comprises a great variety of grave forms including stone-circles with urn-burials, legged pottery sarcophagi, cist graves, sometimes with porthole entrances, stone alignments and rock-cut chambers.

The Indo-Iranian borderlands of Baluchistan and Afghanistan with hills and valleys produced separate local village cultures in about 2700 B.C. though they share basic characteristics. The local cultures are known from the important excavated sites in Afghanistan and Baluchistan such as Mundigak, Kili Ghul Mohammad, Damb Sadaat, Periano Ghundai, Rana Ghundai, Dabarkot, Anjira, Siah Damb, Nal, Nundara, Shahi Thump and Kulli and Mehi. Some of them in course of time gradually developed into urban centres.

The great tracts of alluvial land in the valleys of the Indus and its tributaries provided agricultural potentialities for the rise of great urban prosperous centres (*c.* 2,500—1,750 B.C.). The source of inspiration for these cultures was Western Asia and Iran through Indo-Iranian borderland of Baluchistan which served as corridor for migration (Makran, Quetta and Bolan Passes). First they originated and developed in Harappa in Punjab and Mohenjodaro in Sind, but gradually they spread to wider regions. They covered Baluchistan, Afghanistan, North-West Frontier, Punjab, Sind, North Rajasthan, Uttra Pradesh, almost Delhi, Kutch, Saurashtra, Central and Southern Gujarat and some portion of Maharashtra. Besides Mohenjodaro and Harappa, the other secondary towns are Chanhudaro, Kalibangan, Kot Diji, Lothal, Rangpur, Sutkagendor and Sutka-koh. The surplus production of raw material (because of the soil and finished goods) increased and developed urban centres. In constructing the buildings of these towns, bricks, possibly made from ordinary alluvial soil was used lavishly.

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The physical features of the land have even influenced the Chalcolithic Cultures of India (*c.* 2,000—700 B.C.). Though the Chalcolithic Cultures of different regions share a common level of food economy and technology, they differ in ceramic traditions because of natural environments like soil. The valleys of the rivers provided facilities to these Chalcolithic Cultures for rise and prosperity. These Chalcolithic Cultures are divided into six regional groups on the basis of ceramics—(1) Banas or Ahar Chalcolithic Culture, (2) Navdatoli and Central Indian Chalcolithic, (3) Northern Deccan Chalcolithic Culture, (4) The Neolithic-Chalcolithic Culture of the Deccan, (5) Chalcolithic Culture of the Gangetic *Doab* and (6) Eastern Chalcolithic Culture. Several sites of the Banas Culture are found on the Banas and its tributaries in the districts of Udaipur, Chitor and Bhilwara. In Madhya Pradesh also, Chalcolithic Cultures have been discovered in the valleys of Chambal, Narmada and other rivers. The Chalcolithic Cultures flourished in the South even on the banks of the rivers of Godavari, Krishna, Mahanadi and Kaveri and their respective tributaries. When people of these cultures entered the alluvial plains of Uttar Pradesh, Bihar and Bengal, there must have been thick forests. People used copper and iron weapons, tools and implements to clear them off. The discovery of Copper Hoards in Uttar Pradesh and Bihar proves this fact.

The uplift of the Himalayas has prevented the rain-bearing winds of the Indian Ocean passing out of the sub-continent. The mountain now bends the monsoon along its southern face and deposits moisture in the form of rains. It protects the sub-continent from the cold and dry northern winds. By virtue of its altitude, it is cold enough for the formation of glaciers to feed its rivers and fertilize the plains below.

The Himalayas also served as a great barrier against outside intruders and any influence from the North. It was difficult to cross the mountains from this side. But there are passes on the north-west India. It appears that the source of inspiration for the Pre-Harappan (*c.* 2,500 B.C.), Harappan (*c.* 2,350—1,750 B.C.) and Chalcolithic Cultures (*c.* 2,000—700 B.C.) of India was Western Asia and Iran through these passes which served as corridors for infiltration. Later on, even the Aryans entered India through these passes. First, they occupied the country of *Saptasaindhava*. It denotes the five rivers of the Punjab along with the Indus and the Sarasvatī. In course of time, they gradually advanced towards Kuru, Pañchāla, Kosala, Kāśī and Videha.

The Thar desert lies between the Indus and the Aravallis. The desert conditions must have set in well after the advent of man as there are several evidences of ancient civilization in desert area. AUREL STEIN[1] had already shown the existence of a number of Harappan and allied sites along the banks of Sarasvatī and Dṛishadvatī now known as the Ghaggar. This view was confirmmed by A. GHOSH[2] when he undertook exploration of this area. Kalibangan is one of the great centres of pre-Harappan and Harappan civilization (*c.* 2,500—2,200 B.C.). The use of burnt bricks for building and the presence of well designed drainage system at Kalibangan

1. *The Geographical Journal*, 1942, pp. 173ff.
2. *A Bulletin of the National Institute of Science of India*, No. 1.

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apparently indicate that the climate was fairly humid. Even wild elephants lived there and rice was cultivated in very early times. It indicates moist conditions. The other view is that there was no major change in climatic conditions.[1] Man might have brought improvement in dry and arid area in early times by the use of hydraulic methods of agriculture. It means organization of various irrigational projects under government direction.

There are certain areas such as deserts, forests and secluded vallays which remained the home of primitive tribes like the Nāgas, the Bhīls, the Nishādas and the Pulindas for a long time. Because of the peculiar location of these places, these peoples cut themelves off from the stream of civilization. Continuously, they remained backward, when others made considerable progress. Simultaneously, both the cultures survived. It is difficult to exactly date the timings of these cultures on the basis of the availability of the materials therefrom only. (For example Banda type ecology cannot be fixed of Early Stone Age).

ADMINISTRATIVE UNITS

The Indian sub-continent is known to have been divided into a number of units mainly for administrative convenience. Besides this, history, local culture, language and geographical factors have also been taken into consideration. Such units in one form or other are known to have been in existence in different ages as known from history. Evidence is on record on a scientific basis that the reorganization of States in India in 1956 made the present States as per natural units.[2] For the study of Prehistory and Protohistory of India, the geographical knowledge of these units is essential.

BALUCHISTAN

Baluchistan[3] is an oblong stretch of country bounded on the south by the Arabian sea; on the north by the North West Frontier Provinces and Afghanistan and on west by Persia; and on the east by Sind, the Punjab, and a part of the Frontier Province. It is generally mountainous and lies on the great belt of ranges connecting the Safed-Koh with the hill system of southern Persia.

The characteristic divisions of the country are four in number; Upper Highlands, Lower Highlands, Plains and Deserts. The Upper Highlands, locally know as *Khorasan*, occupy the central and east-central position of the country. The plains of Baluchistan include the peculiar strips of the country known as *Kachhi* and *Las Bela* and the valley of the Dasht River. The deserts are situated in the north-western part of the province. They consist of an open level plains covered with black gravel or of broad expanses of deep sand hills which sometimes assume the proportions of formidable sand-mountains.

1. *Man's Role in changing the face of Earth*, p. 568; Oriental *Despotism*, p. 19; and SPPIP.
2. *MNRISM.*
3. *Ibid.*, pp. 1-5.

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NORTH-WEST FRONTIER PROVINCES

As the name North West Frontier Provinces[1] denotes, the region is situated on the north-west frontier of once 'The Indian Empire'. On the north, it is shut off from the Pamirs by the mountains of the Hindu Kush; on the south it is bounded by Baluchistan and the Dera Ghazikhan district of the Punjab; on the north-east and east by Kashmir and Punjab; and on the west by Afghanistan. The territory falls into three main geographical divisions; the Cis-Indus district of Hazara; the comparatively narrow strip between the Indus and the hills constituting the districts of Peshawar, Kohat, Bannu and Dera Ismail Khan; and the massed mountainous regions on the north and west between those districts and the borders of Afghanistan.

KASHMIR

Kashmir[2] is a very complex physiographic division consisting of :

1. Poonch and Jammu with two further subdivisions;
   (a) Siwalik zone and (b) sub-Himalaya zone;
2. Pir Panjal Range;
3. Vale of Kashmir, with hill ranges and river valleys, such as Karewa terraces and Jhelum Marshes;
4. Main Himalayan Mass; and
5. Gilgit-Hunza.

The geographical location of the Kashmir Valley is important. On one side, it looks to China and on the other to Iran and Central Asia. People as well as cultural influences have entered into (and also gone out from) the valley, principally from both these quarters.

ASSAM

Assam[3] is bounded on the north by the eastern section of the Great Himalayan Range; on the north-east by the Mishmi Hills which sweep round the head of the Brahmaputra Valley; on the east by the mountains and by the Burmese frontier; on the south by Chin Hills, the Chittagong Hill Tracts, and the district of Hill Tippera (Tripura); and on the west by Bangladesh. The Brahmaputra Valley forms Assam which consists of Kamarupa, Meghalaya and Arunachal. But geomorphologically, Assam consists of three entirely different regions belonging to three structural formations; the Himalayan frontier, the main Assam or Brahmaputra Valley which is an extension of the Indo-Gangetic trough and the Shillong Plateau which essentially belongs to the Peninsula. The Garo Hills, the Naga Hills and Cachar Hills have supplied raw material for tools of the Stone Ages.

BENGAL

Bengal[4] is bounded on the north by Sikkim and Bhutan; on the east by Assam; on the south by the Bay of Bengal and on the west by Bihar. This region comprises

1. *MNRISM*, p. 9-13.
2. *SPPIP*, p. 3.
3. *MNRISM*, pp. 36-47.
4. *Ibid.*, pp. 48-57.

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three or four distinct physiographical units : (1) The Ganges delta or the plains with three sub-divisions; (2) The High Plains or the Old Delta (which includes the Pleistocene terrace); and (3) thc Hills. These comprise the western plateau and northern Hills. The Ganges delta or Plains is a comparatively recent formation. From the point of view of the Stone Age Cultures, the area of the western plateau and the hills is most important. This is a part of the old landmass of Peninsular India known as Chhota Nagpur Plateau. The most distinctive of Bengal is its network of rivers—the Ganges and Brahmaputra, with their affluents and tributaries.

BIHAR

Bihar[1] has Nepal on its north, Uttar Pradesh and Madhya Pradesh to the west, Orissa to the south and Bengal on the east. It combines the Gangetic plain with the Peninsular India. It is in the latter, relics of the Stone Ages have been found. Like Orissa and West Bengal, this forms a part of the Chhota Nagpur Plateau. This entire division is split up into the districts of Dhanbad, Ranchi, Palamau, Hazaribag, Santal Parganas and Singbhum. Physiographically and geologically, these form a unit. Outliers of this old landmass are found as hillocks or hill-ranges as far as Patna, Gaya and Mongyr Districts, which are otherwise covered by flat endless sandy alluvium. A portion of the Chhota Nagpur Plateau is drained by the rivers Damodar, Mayurakshi and several smaller streams.

UTTAR PRADESH

Uttar Pradesh[2] is bounded on the north by China, on the west by Rajasthan, Punjab, Haryana and Delhi, on the south by Madhya Pradesh and on the east by Bihar. It includes five distinct tracts of the country: portions of the Himalayas, the sub-Himalayan tracts, the great Ganges Plain and portions of the hill systems of Central India. More than half of the area of this State is included in the great Ganges Plain. These, however, abut on the older rock formation of the Peninsular mass, viz. the Kaimur Hills, a little south of Banaras and now forming the Mirzapur District. The two great geological formations, the Himalayas and the Peninsula, meet here. The Belan Valley is a part of the Kaimur sandstone formations. This is the eastern extension of the Vindhyas and then a part of the ancient landmass, against which the Gangetic alluvium has been laid. Various small streams flow in this region. It supplied excellent raw material viz. chert and quartzite, besides flatslabs of sandstone of good texture and quality for the manufacture of tools (now cement) during Early Stone Ages. Above all, these hills abound in caves and rock-shelters which may have been used by men in different Ages from the pre-historic times.

SIND

Sind forms the extreme southern portion of Pakistan, consisting of the lower valley and delta of the Indus. It is bounded on the north by Baluchistan and the Punjab, on the east by the Rajasthan districts of Jaisalmer and Jodhpur, on the

1. *MSNRISM*, pp. 58-65; SPPIP, pp. 43-44. 2 *Ibid.*, pp. 72; SPPIP, pp. 39-40.

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south by the Rann of Kutch and the Arabian sea, and on the west by the territory of the Jam and Las Bela and of the Khan of Kalat (Baluchistan). Sind comprises three well-defined tracts: the Kohistan (or hilly country) which lies as a soild block between Karachi and Sehwan, Sind proper, the central alluvial plain watered by the Indus; and the *Registan* (or loosely Thar) a band of so called desert on the eastern border, where sand-hills alternating with valleys are often fairly wooded and there are extensive level tracts of pasture land. Besides the Indus, there are some hill-streams, of which the Hab, which may almost be called a river, is important. It forms the boundary between Sind and Baluchistan. The Kirthar range separates Sind from Baluchistan. In the alluvial plain watered by the Indus, pre-Harappan and Harappan cultures flourished at Amri, Kot Diji, Mohenjodaro and Gumla.

PUNJAB

On the north, the Himalayan ranges divide the Punjab[1] from Kashmir and N.W.F.P. On the extreme south-west, the province adjoins Sind, and the Rajasthan desert forms its southern border. On the east, the Yamuna and its tributary divide it from the U.P. This falls into five main physical divisions. Three of these Himalayan Region, the Himalayan Sub-montane which stretches from the Yamuna to the Salt Range, and the Arid Plateau of that range—are small in area; but the sub-montane is the most fertile and wealthiest in the Punjab. The other two are the arid south-western plains and the western portion of the Indus-Ganga Plain West (or Ghaggar Plain) which extends as far westward as Lahore. Both these divisions are of vast extent, but infertile towards the south, where they encroach on the Plains of Sind and Rajasthan.

Siwaliks of the Himalayan Region yielded fossils of mammals including those of the anthropoids (apes). Sohan, Sirsa, Beas and Banganga valleys yielded tools of Stone Ages.

Of all the seven rivers, the Indus is the greatest. The other remaining rivers are the Jhelum, the Chenab, the Ravi, the Beas, the Sutlej and the Yamuna. Some portion of this region was also called *Saptasaindhava* and *Panchanāda* after seven and five rivers respectively. This fertile alluvial tract provided agricultural facilities for the rise of urban centres. The chief among them of the Harappan period are Harappa, Ropar, Bara and Salaura. Sites of the Painted Grey Ware Culture have also been discovered. The Aryans also settled in the *Saptasaindava* region.

RAJASTHAN

Rajasthan[2] looks to be rhombic in shape. All along the west, it is bounded by Pakistan, in the north are Punjab and Delhi, to the east Madhya Pradesh and to the south Gujarat. The Aravallis divide Rajasthan into two natural divisions: Western Rajasthan and Eastern Rajasthan. Western Rajasthan is mostly a desert, and the river beds are completely filled with sands, which hide all earlier rocks as well as alluvial deposits. The only river of any consequence is the Luni which

1. *MNRISM*, pp. 73-80.
2. *ibid.*, pp. 89-98; *SPPIP*, p. 124.

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flows for about 300 Km into the Rann of Kutch. The Ghaggar once flowed through the northern part of Bikaner Division, but now it barely touches Ganganagar District in the extreme north. The discovery of Pre-Harappan and Harappan sites on the bank of this river proves that once, it was well populated. Among these sites, Kalibangan is the most important.

The eastern portion is again divisible into two; the north-eastern part covering the former States of Jaipur and Alwar and the south-eastern embracing the former State of Udaipur. Geologically, the south-eastern region is very rich and complex, whereas the Aravallis are the home of all the oldest rock formations; eastwards we have the Vindhyan states and sandstones and a little south-eastwards the Deccan Trap. Further this area has a river system of importance. The Chambal is by far the largest river in Rajasthan, and its principal tributaries are Kali Sind, the Parbati and the Banas. The principal tributaries of Banas are Berach, Kothari, Khari, Mashi, Dhil and Morel. The man of Early Stone Age preferred this region for habitation because quartzite was easily available for the manufacture of tools. The Ahar valley of this region remained a place of settlement for the chalcolithic people.

GUJARAT

On the west, Gujarat[1] is bounded by the Arabian Sea, on the north by Rajasthan, on the east and south by the States of Madhya Pradesh and Maharashtra. It consists of three distinct natural divisions—Kutch, Saurashtra and Gujarat. Kutch is mostly marshy and sandy, but having a rocky core. The great mass of Saurashtra is formed by the Deccan lavas, the rest by earlier sandstones, while the coast is made up of the recent alluvium. It is probable that not long ago, Saurashtra was an island. The major rivers of Saurashtra are the Bhadar and the Shetvunji. Gujarat proper has three zones: the purely coastal belt of southern and central Gujarat, then the large tract formed by the aeolian sand and alluvium (old and new) formed by the Sabarmati—Mahi, parallel-flowing streams and the easternmost hilly and jungle country. Not only Northern Gujarat but Southern Gujarat, Saurashtra and Kutch also yielded tools of Early Stone Ages. Gujarat was also inhabited even by the Harappans as it is proved by the excavated sites such as Lothal, Rangpur, Rojdi, Prabhas, Somnath and Desalpar.

MADHYA PRADESH

Physically, culturally and politically, Madhya Pradesh[2] is regarded as THE HEART OF INDIA. It is the passage way from north India to the Deccan. It is the largest state of the Indian Union in area. It is bounded by the Aravallis in the west, the Vindhyas in the south and the Ganga-Yamuna *Doab* in the north. On the west and north, it is drained by the Banas, Chambal, Sipra and their tributaries, in the south by the Narmada, in the east by the Son and in the southeast by the upper courses of the Ken and the Betwa.

1. *Ibid.*, pp. 99-107; *SPPIP*, p. 5.

2. *Ibid.*, pp. 108-124.

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The large tract of Madhya Pradesh has regions within regions among its manifold diversities of the geographical environment; yet the major ones that are quite distinct are the Malwa Plateau, Mahakoshal (Upper Narmada Valley) Chhatisgarh Plains (Upper Mahanadi Basin), Vindhya Pradesh (Vindhyan-Kaimur Scraps) and Bastar. From the archaeological point of view, Narmada Valley is important because remains of the Stone and Chalcolithic Ages have been discovered.

ORISSA

Orissa[1] is bounded in the north by the Chhotanagpur, in the west by the Chhattisgarh Region, in the south-west by the Dandakaranya Region, while to the east and the north-east lie the Orissa-coastal plain and West Bengal respectively. This region contains several ranges rising above the coastal plains. It is mainly drained by the Mahanadi, the Brahmani and the Baitarani river systems which cut wide valleys across the highlands. The region is an interesting complex of denuded hills, plateaus, sharp ridges and mature valleys. The Mahanadi, flowing west to east cuts it into two parts. The northern part is an extension of the Chhotanagpur plateau and the southern part of the Eastern Ghats. Physically the region may be broadly divided into three distinct units, each with a different physical character: (i) northern uplands, (ii) The erosional plains of Mahanadi Valley and (iii) the delta region.

MAHARASHTRA

South of the Vindhyas is Maharashtra[2] which includes three or four former cultural units, Khandesh, Desh or Western Maharashtra, Vidarbha and Konkan. The most important drainages are the Tapti-Purna, Wardha-Vainganga and the upper Krishna-Godavari, whereas the Konkan which is a narrow strip of coastal plain is drained by numerous fast-flowing streams. Desh or Western Maharashtra was believed to have been formed by the horizontal sheets of lava which on weathering have resulted in a beautiful topography, hills with terraces and occasional peaks, rolling plains and fairly wide river valleys. The Konkan is well-forested and receives heavy rains. Men of Stone Ages lived all over Deccan Plateau and the Konkan foothills because, plenty of raw material for the manufacture of tools was available. Chalcolithic Cultures also flurished on the banks of these rivers.

ANDHRA

In the south, west and north, Andhra[3] touches the States of Tamilnadu, Karnataka, Maharashtra, Madhya Pradesh and Orissa respectively. Geologically this region along with Orissa and southern U.P. froms the old landmass of India. In this area, there are the oldest rock formations on the earth which form the so called Eastern Ghats. Their sub-ridges go by the name of the Nallamalais and Erramalais. This region is drained by three river systems, the Godavari. the Krishna and the Pennar.

1. Ibid, pp. 119-124; *India, A Regional Geography*, pp. 754-774.
2. *ibid.*, pp. 125-137; *SPPIZP*, p. 74,
3. *India, A Regional Geography*, pp. 821-849; *SPPIP*, p. 55.

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This region may be divided into three divisons: (1) Telangana, (2) Rayalaseema Uplands and (3) the Ghats. Kurnool is an important site of this region as it provides a fairly good sequence of Stone Age tools.

KARNATAKA OR THE MYSORE PLATEAU

Karnataka[1] consists of an undulating, much broken chains of rocky hills and scoured up by deep ravines. Its form is that of a triangle, with the apex to the south, at the point where the Western and Eastern Ghats converge in the group of the Nilgiris hills. This is a plateau of considerable environmental contrasts. The western parts get more rains than the Eastern Ghats. Three major rivers, all flowing from west to east, the Kaveri in the south, the Tungabhadra in the north and the two Pennars and the Palar in the east drain this region. Geologically too, almost all the important formations, save sandstone and trap, are met here.

Karnataka is divided into two regions of distinct character-the hill country, called *Malnad*, on the west confined to the tracts bordering (or resting on) the Western Ghats (in Shimoga, Kadur and Hassan Districts); and the more open country in the east, known as *Maidan* comprising the greater part of the region, where the wide-spreading valleys and plains are occupied by numerous vlllages and populous towns.

TAMILNADU (MADRAS)

Tamilnadu[2] is believed to be a simple coastal belt, but as O.H.K. SPATE has shown, it is not as simple as that. It is a great quadrant, lying between the sea and the Deccan Plateau. The coastal plain proper extends from the Krishna to the Cape. But this is broken by the Kaveri delta. Inland are the discontinuous Tamilnadu hills. The most important river that drains the region from west to east is the Kortailayar with other smaller ones like the Arani or Araniya nadī, and the Attirapakkam *nālā*. The whole region can be grouped into three major divisions-(1) South Sahyadri, (2) Tamilnadu Ghats and (3) Coimbatore—Madurai Uplands.

Excepting for a small strip of east coast, hardly five Km in width, the hinterland is an old laterite plateau, dotted with still older formations like the conglomeratic Alicoor hills, the basal rock formation being shale and gneiss. The conglomerate on weathering has littered the ground with pebbles and boulders to which the river had added by aggradation.

KERALA

Kerala[3] (Malabar) is perhaps the most beautiful, and certainly one of the richest and most fertile region lying on West Coast. On the east, it is separated from Coorg, the Nilgiris, and Coimbatore by the Western Ghats, which forms continuous mountains-barrier. It is drained principally by the Periyar and the Rampa. It can be divided into three ratural regions—(1) Western Ghats, (2) Piedmont Region and (3) Coastal Plains. The coastal belt is of recent growth. This region has so far not yielded any paleoliths.

1. *MNRISM*, pp. 146-169; SPPIP, p. 69.
2. *SPPIP*. p. 66; *India, A Regional Geography*, p. 872.
3. *MNRISM*, pp. 178-187.

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CHAPTER III

SOURCES

The history of ancient India from the earliest times to the sixth century B.C. may be studied under two heads—Prehistory and Protohistory. Prehistory deals with Stone Age Cultures of the period when man was a savage. The main sources of Prehistory are stone tools, fossils, terraces of the rivers, etc. These sources help in determining the distinct Geological Ages and Stone Ages, and they give information about the climatic changes, the environments and habits of the people. Protohistory studies those traits which make up civilization. Man gradually became more civilized. There was shifting of civilization from the stage of food-gathering to food-production. No written record identifying the archaeological cultures of the Protohistoric period is available, but foundations of buildings, pottery objects, grains, terracottas, metal objects, beads and ornaments throw significant light on the material life of the people. The *Vedas*, the *Zendavesta*, the *Purāṇas* and the *epics* are the literary sources for the study of Protohistory but they are not definitely dated.

ARCHAEOLOGICAL

STONE TOOLS

Most of the stone tools so far collected are from the surface of the earth, but some are from the terraces of the rivers. The tools discovered from the terraces are important from the stratigraphical point of view. They throw light on the gradual evolution of the tools meeting new environments and thus, they determine Stone Ages, each with pecluiar characteristics. Generally, these tools are found at those places where raw material for manufacturing them is easily available. The Lower Palaeolithic people made and used crude tools generally of quartzite. These tools are divided into two groups: (1) handaxes and cleavers (Madras), and (2) Pebbles (Sohan) according to distinct geographical features and different manufacturing traditions. The tools of Middle Stone Age are of flake-nature, and they are smaller than those of the earlier period. The new material is agate, jasper and other fine grained stones. Blade and burin are the tools of the Upper Palaeolithic period. Tiny tools known as 'microliths' highly improved upon the earlier ones were devised. Ground and polished stone tools were used during the Neolithic Age. The lithic industry continued even during the Chalcolithic Period because metal was scarce and costly. Bone tools were also discovered from some sites. These tools served the purpose of hunting, skinnig animals, digging roots, etc.

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These Lower Palaeolithic men settled near the banks of the rivers and foot of the hills where the raw material was available. The fact that these Lower Palaeolithic people lived in pockets in different regions, is proved by the discovery of tools. In the Mesolithic Age, the occupation of sites was more extensive and intensive than that of the preceding Stone Ages. The sites, according to environments, may be divided into following types: (1) Open rocky areas, (2) sandy areas, (3) coastal areas, (4) caves and rock(-)shelters and (5) river banks.

FOSSILS

Remains of animals and plants found entombed in deposited sediments are called fossils. They indicate the environments of ancient sedimentary rocks in which they are found. They inform about the climatic changes. They also show the progress of life from simple to complex forms as the sedimentary beds containing them are followed from older to younger ones. The teeth being the hardest material of the body are most commonly preserved as fossils. They also help in determining the Geological Ages and Stone Ages. The Siwaliks of the Punjab and some rivers of India furnish knowledge about fossils of the very early period. The Lower and Middle Siwaliks yielded fossils of mammals including those of anthropoids. From the study of the fossils, it appears that the number of *Bos* and *Elephas* was larger in comparison with other animals in Peninsular India. Like Siwaliks, the Narmada Valley at Hoshangabad, Narsimhapur and other places has given the largest number of fossils of the Pleistocene Period. The important fact about these fossils is that the old forms continued to survive for a long time after they perished in Siwaliks. They include *Elephas namadicus*, *Bos namadicus*, *Equus Namadicus*, *Heraprotodon*, *Bubalus*, *Sus* and *Cervus*. Besides fossils of animals like the *Bos namadicus*, *Elephas antiquus* and *Rhinoceros* have been found at some other sites such as Nandur, Madhmeshwar, Kalegaon and Nevasa in the Godavari Valley. *Elephas* has been found at Chandoli and at Kalamb on the Ghod river, District Pune. *Bos* and other animal remains have been reported from Amraoti, Chanda and Wardha Districts. The remains of *Bos* along with pebble tools were discovered at Nittur near Tekkalkota, District Bellary in Karnataka. The Lower Palaeolithic men lived near the banks of the rivers where these fossils have been discovered and they lived by hunting them.

From the recorded finds of animal fossils found at Hoshangabad, Narsimhapur, Devakachar, Burmaghat Siddeshwar on the Narmada in Madhya Pradesh, Nevasa on Pravara, in Kaleogaon on the Godavari in Maharashtra; Nittur near Bellary and Hagargundi near Gulburga in Karnataka, it is known that *Bos* and *Elephas* had survived during the Middle Stone Age. There does not seem to be any change in fossils.

During the Mesolithic Age, there was shift from big game to small game hunting. Animal bones recovered from the hearths at the site of Sarai Nahar Rai in Uttar Pradesh dated *c.* 8000 B.C., give an idea of the fauna—the bones of stag, bison, rhinoceros, fish and tortoise. From the site of Langhanaj, a large number of bones have been found. From their study, the fauna seems to be of games, and people were hunters and fishers. They subsisted on such games as the cow, buffalo, wild horse, ox, sheep, goat, dog, rats, fish and crocodile.

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Gradually people began to domesticate animals. The cattle rearing is demonstrated by the remains of the domestic animals such as dog, sheep, goat and buffalo found at the Neolithic sites. The cultural data of the pre-Harappan sites in Baluchistan (*c.* 4000 B.C.) indicate that inhabitants had domestic sheep, goats and oxen. Gradually, the number of the domesticated animals increased as it is known from the bones of the different animals discovered in the excavated Harappan and Chalcolithic sites.

FLORA

The specimen of flora in large number of Stone Ages are not available because of their perishable nature. At Saugam about 14 Km from Nevasa, a completely silicified piece of wood was found in the earlier gravel bed. CORVINUS reports the discovery of fossil wood pieces at Chirki-Nevasa. Near Inamagon, District Pune was located a fossil soil. This has yielded grains of *chibil*. A huge carbonized trunk in the dam-cutting was found at Mulanagar near Rahuri. It was identified as *Terminalia Arjuna*.

People gradually started to cultivate land and became acquainted with agriculture. The salt lakes of north Rajasthan have yielded pollen evidence that in *c.* 7000 B.C., the climate was relatively humid. There was a large scale burning of forests accompanied by the occurrence of *cerelia* pollen. All these data may indicate a beginning of agriculture. Koldihawa near Allahabad with its dates going back to *c.* 6000 B.C. is another site to look for the beginning of agriculture. The discovery of harvesters (stone knives), ring stones, concave-shaped saddle querns and several rubbers or pounders at some Neolithic sites suggest that some kind of grain was coarsely crushed and eaten. The discovery of a ploughed field in pre-Harappan times at Kalibangan proves the use of plough for the cultivation of land. Wheat and barley and other crops have been found at Harappa and Mohenjodaro. Rice husks and spikelets embedded in clay and pottery were discovered at Lothal and Rangpur. No site in India, except Navadatoli is known to have yielded so many cereals, legumes, oil seeds and fruits.

STRATIGRAPHY

Scholars have studied the terraces of the rivers and proposed stratigraphical sequence of deposits. De TERRA and T. T. PATERSON, A. P. KHATRI, H. D. SANKALIA, G.J. WAINRIGHT, etc., attempted stratigraphical sequence at several places in the Narmada Valley in Madhya Pradesh. F.E. ZEUNER on the basis of stratification of Sabarmati, Mahi, Orsang, etc., made such an attempt in Gujarat. At Burhabalang in Mayurbhanj, G. C. MOHAPATRA fixed the stratigraphic sequence. The deposits of the rivers differ but generally the sequence from the lowest is noticed as follows—Laterite, Mottled Clay, Cemented gravel, Silt, Red soil, etc. These clay deposits reveal climatic cycle of wet and dry phases. The tools and fossils found in these deposits are of great help in determining the Geological Ages and the Stone Ages. The early palaeolithic man seems to have appeared on the cemented gravel.

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Stratigraphy records the contents found in the layers of the ground of the site. These layers represent the different settlements from time to time. Stratigraphy is basically a means of dating the layers and their contents of the respective cultures not absolutely in terms of years but relatively. Some excavated sites give a sequence of cultures without any break. The fact that the pre-Harappan culture underlie the Harappan at many sites such as Kalibangan, Kot Diji and Amri is known from stratigraphy. The pre-Harappans lived together with the Harappans at Kalibangan not only at the same site but also in the same houses. It is, therefore, the Harppans borrowed some cultural traits of the pre-Harappans. Sometimes, the site was deserted, and was inhabited after a long time.

CLIMATIC CHANGES

The climatic changes during the Stone Ages naturally had great effect on men, animals and plants of the time. There were four glacial and three interglacial periods in Kashmir and Punjab. Man made progress during these interglacial periods. There were alternating phases of cold and heat. During the cold climate, some men and animals might have migrated to other regions while others adapted to it. In warm climate, new people and animals might have come for settlement. Corresponding to these cold and warm phases in Kashmir and Punjab, there were wet and dry phases in the remaining sub-continent of India. These two regions with different climates must have given birth to different animals and plants.

During the Protohistoric period, there are two views regarding climatic changes. It is known from the study of the archaelogical sources that Sind, Baluchistan and the adjoining parts of Rajasthan were wooded, and had a much more favourable climate. The use of burnt bricks for building and the presence of well designed drainage system apparently indicate that the climate was fairly humid. Wild elephants used to live and there was cultivation of rice. The desert conditions seem to have grown gradually during the last 3000 to 4000 years. The other view is that man cannot alter the general atmospheric circulation in any significant way. He might be successful in changing the climate only through manipulation and modification of the casual factors.[1] WITFOGEL[2] is of the opinion that man might have brought improvement in dry and arid areas in early times by the use of hydraulic methods of agriculture. It means organization of various irrigational projects under government direction. On hydrographical, zoological, botanical, archaelogical and architectural grounds, RAIKES, DYSON and FAIRSERVIS argue, that no climatic change of any major proportion had occurred. H.D. SANKALIA[3] also holds that the houses in Sind and Bikaner continue to be built without windows as in Mohenjodaro. This is to shut out heat and dust.

HUMAN SKELETONS

No human skeletons of the Pleistocene Period have so far been available. The earliest human skeletons in India are known to have been discovered from tne

1. *Man's Role in changing the face of Earth*, p. 568.
2. *Oriental Despotism*, p. 19.
3. *SPPIP*

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burials of Sarai Nahar Rai in Uttar Pradesh. These are dated about 8000 B.C., and they belong to the Holocene Period. They seem to be tall, healthy and muscular. Probably, they belonged to the race of Dolicocephalic people. Even at Langhnaj in Gujarat, human skeletons have been recovered, and they are earlier than 2500 B.C. At Bagor (*c.* 4600 B.C.), people buried their dead in an extended position in east-west orientation.

Human skeletons of different periods discovered in archaeological excavations are significant from the anthropological point of view, and they also throw light on the burial customs and practices. From the Neolithic sites of Kashmir, both extended articulated skeletons and partial viz. selected bones of human beings have been found. The articulated method was in vogue in comparison with fractional. From the discovery of cemeteries at Nal, Shahi Tump, Kalibangan, etc., it seems that there were three or four methods of disposing the dead during the pre-Harappan period. Grave goods were also found. SEWELL and GUHA on examining the available skeletal material comprising 26 skeletons at Mohenjodaro pronounce that the human remains disclose four ethnic types, viz. Proto-Australoid, Mediterranean, Mongolian and the Alpine. On the other hand, SARKAR on the basis of the cephalic index shows that the Harappan people of Mohenjodaro have similarities with the present day people of Sind, those of Harappa with the people of Punjab and those of Lothal with the people of Gujarat. Of the 131 burials found at Nevasa and a few at Bahal, Chandoli, Daimabad, Songaon and 50 at Inamagon, it is clear that dead bodies were buried under the floor of the houses during the Chalcolithic period.

HEARTHS, ROCK-SHELTERS AND BUILDINGS

In early Stone Ages, men lived on the banks of the rivers and near the foot of the hills. Only their stone implements are found, but there are no remains of their settlement. In the Mesolithic period, some people started to construct hearths and they lived in rock-shelters. The hearths discovered at Sarai Nahar Rai in Uttar Pradesh and at Bagor in Rajasthan give an idea of their early houses. The rock-shelters of these people have been found at some sites near Mirzapur in Uttar Pradesh and at Pachmarhi, Adamgarh, Kobra Pahar and Barkhera locally known as Bhimbetka near Bhopal in Madhya Pradesh. That these people made them their homes is clear from the fact that their stone tools known as microliths have been discovered in them. Some rock-shelters are important from the artistic point of view because their paintings are ascribed to the prehistoric period by some scholars. These paintings depict the life of the people during such an early period. From the Neolithic sites of Kashmir, it is known that inhabitants lived in pit-dwellings which appear to be irregular in shape.

The remains of the houses discovered in the excavations of different sites such as Kili Ghul Mohammad, Mundigak, Damb Sadaat, Amri, Kulli, Mehi and Nundara prove the emergence of settled viliages after 3000 B.C. The clay models of houses found at Damb Sadaat give an idea of the house in third millenium B.C. A transition from village to fortified settlement of their own was taking place as evidenced from some of the excavated pre-Harappan sites, such as Mundigak, Amri,

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Kot Diji and Kalibangan. The archaeological excavations conducted at Mohenjo-daro, Harappa, Chanhudaro, Kalibangan, Kot Diji, Lothal, Rangpur, Suktagendor and Sutka-Koh furnish information regarding town planning and architecture, streets, structures, drainage, brick sizes, etc. The Harappan culture was followed by Chalcolithic Culture. This culture was marked by rural economy, and people lived in houses of mud and stone in villages.

POTTERY

Pottery verily played an importont part in building up the sequence of the cultures specially during the period of protohistory. It remained a trustworthy source of past cultures. Once baked in fire, it is almost imperishable. If studied intelligibly, it reveals important aspect of the people who made it. By studying fabric and forms of potsherds discovered in archaelogical excavations and explorations, their characteristics of the particular period have been recognised. In the beginning, pottery was hand-made; specimens of which have been discovered from some sites of Baluchistan. Then gradually wheel-made pottery was devised. The pre-harappan pottery is pinkish, thinner and not well-baked. At Lothal in Gujarat, it is Micaceous Red Ware. Harappan pottery consists chiefly of wheel made wares, both plain and painted. The plain ware is usually of red clay with or without a fine red slip. The painted pottery is of red and black colour. Several devices were employed by the people for the decoration of pottery. The Harappan ware is much widespread.

The ceramics of the Chalcolithic Period of different regions differ because of environments. The principal ware of South-east Rajasthan at this period was Black and Red Ware which comprises bowls, dishes-on-stand and small globular jars. The most common ware of Madhya Pradesh is a red pottery with black designs. The pottery of Northern Deccan is a greyish Black Ware. It has bowls, *loṭās* and globular vessels of various typess. They Burnished Grey Ware is a distinct trait of the Neolithic-Chalcolithic Culture of the South. Ochere Ware is the chief ware of the Gangetic *Doab*. Black and Red Ware is the characteristic of the Chalcolithic culture of East India. The Lustrous Red Ware, the Black and Red Ware and Prabhas Ware were main fabrics of Saurashtra. Among these wares, Black and Red Ware is a widely distributed ceramic because it is found in South-east Rajasthan, Saurashtra, Madhya Pradesh, Uttar Pradesh, Bengal and Bihar. The mutual cultural contacts among different regions is clear from the fact that ceramics of one region is also found in another. The epicentre of the Painted Grey Ware was in the Ganga-Yamuna Doab, but it is also found in different places. The vessels in Painted Grey Ware sites are restricted in shape being confined to dishes and bowls.

The pottery, like other source material throws light on the political, religious, social and economic history. Some scholars have identified some ceramic cultures with the Aryans and other tribes mentioned in the *Vedas* and the *Purāṇas* but it is not definite. The painted designs on the Harappan pottery include a variety of flora and fauna. There is no evidence other than that of the painted pottery to establish the plantation of the banana by the Harappans. The painting on a potsherd from Harappa indicates the use of *dhotī*, the lower garment by the people.

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Two inscribed potsherds from Kalibangan prove that the direction of writing in the Harappan script was from right to the left. A painting on the pottery at Lothal depicts the kernel of the story of the cunning fox who flattered the crow and managed to pinch away the morsel from its mouth. The pottery also throws indirect but much welcome light on the food habits of the people. The Painted Grey Ware people might have been eating *dāla-bhāta* (lentil and rice in these dishes).[1]

METAL

The advent of metal is noticed first of all in pre-Harappan period. It has distinct advantages over stone, bone or wood for making implements and other objects. The metal objects discovered in archaeological explorations are important from the historical point of view. The copper implements found at pre-Harrappan sites such as Mundigak, Nal, Mehi, Damb Sadaat, Kot Diji and Kalibangan prove that they were used for agriculture and other purposes. The women of Kalibangan wore bangles made of copper. Copper beads have also been found.

During the Harappan period, there was sudden efflorescence of metal because different types of copper and bronze artefacts have been discovered. As a consequence of so much use of metal, the surplus production of raw material and finished goods increased, and urban centres came into existence. Lance-heads, chisels, celts, axes, adzes and saws figure among the tools and implements of copper. Weapons of war or the chase were axes, spears, daggers, bows, arrows, maces, slings, perhaps catapults, and sword like objects made generally of copper or bronze. The bronze sculptures and animal figures found at Mohenjodaro, and little models of bullock-carts and *ikkās* from Chanhudaro and Harappa testify to a remarkable degree of skill in bronze-working. Gold occurs in the form of beads, pendants, armlets, brooches, needles and other small personal ornaments. Silver made its earliest appearance at this time. That it was relatively more common than gold is indicated by the number of large vessels and ornaments made of silver. The Harappans seem to have maintained close contact with different regions for the import of various metals.

In the Chalcolithic period, a few objects of copper such as axes, celts. chisels, daggers or swords, bangles and rings in small quantities are found together with pottery. The unstratified Copper Hoards containing different types of objects found in Uttar Pradesh, Bihar, Orissa and Madhya Pradesh might have been used for clearing forests and for agriculture. About the authorship of these Copper Hoards, there is a controversy. Some say that they were relics of the Harappan refugees; some ascribed them to the Aryans, and while others are of the view that they were of nomads and hunters.

Subsequently, the introduction and use of iron brought about a revolution in the economic condition of the people. In comparison with other metals like copper and bronze, it is much more durable. Iron objects have been found associated with Painted Grey Ware and Black and Red Ware in the North, and Megalithic Ware in the South. It played a great role in colonizing the dense

1. B.P. Sinha (ed), *Potteries in Ancient India.*

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forest areas like that of the Gangetic *Doab*. A large number of settlements in the form of villages were established. It was intensely used in the seventh or the sixth century B.C., and prepared the ground for the rise of cities and towns in large number.

TERRACOTTAS

Terracotta figures of animals and human beings of different periods were discovered at several archaeological sites. They served the purpose of decoration, toys for children and sometimes even for religious worship. Animal figures were found in larger number than those of human beings. Among the animal figures, those of bull are frequently found. Terracotta figurines of bull were discovered at Neolithic sites of Kashmir, pre-Harappan sites of Afghanistan and Baluchistan, Harappan sites, some Chalcolithic sites of Madhya Pradesh like Kayatha, Avra, and Manoti and Navadatoli, and of Saurashtra. People, perhaps used them for worship because they played an important part in the economic life of the people. At the Neolithic site of Chirand in Bihar and pre-Harappan sites of Gumla, Hathala and other excavated sites of North West Frontier, numerous terracotta figurines of serpent goddess were found. The Terracotta figure of horse is noticed at the sites of Saurashtra from about 1000 B.C.

A large number of terracotta figurines of mother goddess were recovered from the pre-Harappan sites of Afghanistan and Baluchistan, Harappan sites and from the Chalcolithic sites of Nevasa and Inamgaon. This proves that the worship of mother-goddess was very popular. Horned human figures were noticed at Mohenjodaro, Harappa, Gumla, Kot Diji and Kalibangan. JOHN MARSHALL[1] has identified these figures with the proto-type of the historic Śiva.

Terracotta spindle whorls found at pre-Harappan sites of Kot Diji and some other Harappan sites and Chalcolithic site of Ahar prove that they were used for spinning cotton. Terracotta cakes and balls discovered at Kot Diji and pottery discs at Navdatoli, Avra and Eran prove that they might have served the purpose of weights. Terracotta wheels were obtained from the Harappan sites, and some Chalcolithic sites of Navadatoli and Eran. Beads and bangles of terracottas were recovered.

SEALS

Several seals not bearing any writing discovered from pre-Harappan sites such as Shar-i-Sokhta and others were used for trade transaction. The number of seals found in the excavated Harappan sites are about two thousand. These are of various types viz. square, rectangular, button seals, cubical seals, rectangular seals, cylinder seals and round seals. The craftsmanship of these seals is excellent. They are of two main types; the first square with a carved animal and inscription, and the second rectangular with an inscription only. Generally, these seals were used in connection of trade. Many of the seals appear to carry numerals as a part of their information. This is confirmed from the fact that numerous seals were recovered

1. *MIC.*

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in the remains of the warehouse at Lothal. The Harappans carried on trade with Mesopotamia because their two dozen seals were discovered from Ur, Kish, Susa, Lagash and Tell Asmar. Some seals of Mesopotamia and Sumer were found at Harappan sites. Seals with 'cult' motifs contain material of religious character. Inscribed Harappan seals prove that writing was prevalent in such an early period. Attempts are being made to decipher the script of the seals.

LITERARY SOURCES

VEDIC LITERATURE

Among the literary sources for the history of India, Vedic literature is important. The *Ṛigveda*, which is the earliest surviving document of mankind, gives information of the civilization of the early Vedic Period. For the Later Vedic Period, the later *Saṁhitās*, the *Brāhmaṇas*, the *Āraṇyakas* and the *Upanishads*, are useful.

The Vedic literature is mainly concerned with the religious thoughts, beliefs and practices of the Aryans. Most of the *hymns* of the *Ṛigveda* are all invocations to the gods conceived as personifications of the powers of Nature to bestow spiritual and material favours on the devotees. The *Brāhmaṇas* explain the value and efficacy of sacrifices and rituals which became popular. The *Āraṇyakas* and the *Upanishads* emphasized on the true knowledge (*Jñāna*) for peace and salvation.

Besides religion, the Vedic literature incidentally throws light on the political, social and economic conditions of the people. The *Ṛigveda* gives information about the gradual expansion of the Aryans and their settlements in northern India. It furnishes knowledge about the political institutions such as *Sabhā*, *Samti* and *Vidatha*; king and his functions, and administration. During the later Vedic Period, the Aryans further moved in the east and south. Some of their kings became powerful and established vast kingdoms by annexing the neighbouring kingdoms. The government became more complex than the early vedic age by employing a large number of officers. The origin of kingship forms the subject of speculation in the literature of this period.

The *Ṛigveda* in some passages indirectly mentions about *Varṇa* system, *Niyoga*, position of woman, marriage, education, etc. In one passage, there is a description of marriage ceremony. The *Brahma* form of marriage was prevalent during the early Vedic Period, and the *Gāndharva* form of marriage was well known. Important social changes took place during the Later Vedic Period. The caste system, more or less on the basis of birth was on its way towards crystallisation. A large number of castes came into existence. The *Āśrama* system started as it is found mentioned in *Brāhmaṇas* and the *Upanishads*. The position of the Śūdras and the women started to be lower in the society. The system of education became gradually specialised, and different branches of learning came into existences.

From the *Ṛigveda*, it is known that plough was used for agriculture, and it was drawn by a bull. For irrigation, there was arrangement of wells and tanks. On the principle of division of labour, occupations were determined. The *Paṇis* carried on trade both inland and foreign. During the later Vedic Period, heavy plough was to be manufactured, and it was drawn by many bulls. There was much use of iron

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which laid the foundation of material life. Because of the organization of several crafts and industries, trade and commerce developed.

ZEND AVASTA

The *Zend Avesta*, a sacred book of the Iranians, supplies information of ancient Iran's religious ideas, rituals and names of gods which, to some extent resemble those of the *Ṛigveda*. The common material between them proves that both originated from the one and the same source. They jointly reflect the culture of the undivided Indo-Iranian Aryans.

EPICS

The two Epics—the *Rāmāyaṇa* and the *Mahābhārata*—embody a mass of floating legends and bardic lands recounting the triumps and reverses, in war and love, of ancient heros and heroines. The *Rāmāyaṇa* is the story of war between Rāma and Rāvaṇa while the *Mahābhārata* deals with the great conflict between the Kauravas and the Pāṇḍavas. Both occasionally give dynastic lists, they also deal with traditional accounts.

PURĀṆAS

The *Purāṇas*, eighteen in number should deal with five set subjects, viz. (a) *Sarga* (Primary creation), (b) *Pratisarga* (re-creation after periodical dissolution of the universe), (c) *Vaṁśa* (genealogies of gods and Ṛishis), (d) *Manvantara* (groups of *Mahāyuga* "great ages" in a *Kalpa* or aeon, in each of which the first father of mankind was Manu), and (e) *Vaṁśānucharita* (histories of old dynasties of kings). Of these, the last topic alone is important for the purpose of history, but it is found in the *Matsya*, *Vāyu*, *Vishṇu*, *Brāhmaṇḍa*, *Bhāgavata* and *Bhavishya* only out of the extant *Purāṇas*.

These *Purāṇas* in present recension can hardly be placed earlier than the Gupta period but relate the history of very early period far distant in time. The account preserved in them is vitiated by exaggeration, mythological details, religious bias and the divergencies in the texts. In spite of these defects, their account may not be regarded as wholly unreliable. For the purpose of reconstructing correct genealogies, the texts of the *Purāṇas*, that generally agree, have been collated in order to establish synchronisms co-ordinating the kings of different dynasties about whom there are copious and clear statements. It is likely that the royal genealogies of kings were preserved from the very early time by the *Sūtas*. These accounts probably formed the basis of the original *Purāṇa* from which the genealogical texts of the existing *Purāṇas* were ultimatly derived. F.E. PARGITER[1] holds on the basis of Indian tradition that this original *Purāṇā* was composed more or less about the same time when the Vedic texts received their final form.

1. *AIHT*

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METHODS OF DATING

For dating the cultures of the period of Prehistory and Protohistory of India, no written records and calenders are available. Traditions suggesting time-scales for the evolution of man and the subsequent cultures preserved in the *Purāṇas*, the epics and the *Vedas* are not definitely dated and reliable. The science of geochronology deals with the time-scales of cultures which extend back into the distant past beyond historic period. It covers human prehistory as well as the whole of geological past. It draws its methods from Geology, Botany, Zoology and Physics. The methods for dating the past based on the Science of geochronolgy are absolute while others were relative. F.E. ZEUNER[1] suggested the following absolute methods of dating the past.

1. DENDROCHRONOLOGY OR TREE RING ANALYSIS

This method relies on the cycles of the year and the sunspots, covering historic and prehistoric phases and extending over the last 3,000 years.

2. VARVED CLAY ANALYSIS

It relies on the cycles of the year, the sunspots, and the precession of the equinoxes, covering the time from the end of the Palaeolithic to the Iron Age, applying mainly to the last 15,000 years.

3. RADIOCARBON METHOD

It relies on the disintegration of carbon 14 in dead organic matter, and covers about 30,000 years.

4. PERCENT OF EQUIBRIUM METHOD

It relies on the radioactive disintegration of radium in deep-sea cores and covers about 300,000 years.

5. SOLAR RADIATION METHOD

It relies on the cycles of the precession, obliquity, eccentricity, and covers the Palaeolithic and the Ice Age and extends over about one million years.

6. GEOLOGICAL METHODS

These are based on estimated time-rates of sedimentation, denudation, erosion, weathering, and chemical changes in minerals and applied to all periods.

7. URANIUM AND OTHER RADIO ACTIVITY METHOD

These rely on the periods of decomposition of radioactive mineral, covering all geological formation previous to the appearance of man, and extending over about 3,000 million years.

1. *Dating The Past*, pp. 45 ff.

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Besides there are biological implications of these time-scales.

In India, Geological and Palaeontological methods were adopted for determining the date of prehistoric cultures in the beginning. After studying the glacial and Interglacial deposits in India, and having correlated them with the human cultures, DE TERRA and T.T. PATERSON came to the provisional conclusion that the earliest man in the Sohan Valley lived sometimes towards the end of the II Glacial Period or about 435,000 years ago. By studying the terraces of the rivers, geologists have attempted to fix the geological periods.

Palaeontological methods were used to study the fossils discovered at Siwaliks, Narmada Valley, Godavari Valley, etc., for fixing their time-scales. Pollen analysis or Polynology is by far the major botanical technique in paleo-ecological work. The basic principle of pollen analysis is that the most wind-pollinated trees, shrubs and grasses emnate pollen in great quantities. On the basis of the eustatic changes in the sea level and its relation to microlithic *teri* sites of Madras, F.E. ZEUNER places them to about 4000 B.C.

CARBON 14-METHOD

Recently, in India, the C-14 lab. at PRL (Physical Research Laboratory) Ahmedabad (Previously at Tata Institute of Fundamental Research, Bombay) has dated about eight hundred archaeological samples. This has enabled one to define a fairly consistent framework on which one can assign the various Indian prehistoric cultures. In India by using the C-14 method, one can go back up to 45,000 years. By carbon-14 method, Middle Stone Age sites, Microlithic sites, Neolithic sites, Harappan sites and Chalcolithic sites of India have been dated.[1]

Every animate body contains radio-active carbon called Carbon-14. The rate of emission (taking out) is measured by the apparatus called Geiger counter. Physicists have found that after death, the half life of Carbon-14 will be 5730 years *i.e.*, a bone of a man who died about 6000 years ago will show a half as many clicks on Geiger counter as the bones of man who died to-day. Thus the radio-activity of an animate object turned into inanimate object is reduced to a half and thereafter reduced to a quarter and so on. It helps to determine the antiquity of different objects such as charcoal, wood, peat, charred antler and bone, hair, hide, leaves, nuts, etc.

POTASSIUM ARGON METHOD

Recent discoveries from Africa extend back the origins of the hominid forms to 3.5 million years ago on the basis of K-Ar dates. It is a Potassium-Argon method of dating. It is a modern method of spectroscopic dating the ancient objects. With the availability of K-Ar dates, the antiquity of man has been pushed back considerably beyond the earlier conventional estimates. In India too, we have stone artifacts made by Early Stone Age man, but unlike Africa, there are not overlying Quarternary lavas which could be used for K-Ar dating.

1. *Physics News*, Vol. 6, No. 4, December, 1975.

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RELATIVE METHODS

Besides absolute methods of dating the cultures of Prehistory and Protohistory of India, there are relative methods. Stratigraphy has been used for fixing the time-scales of various past Indian cultures. On the basis of comparison and parallel of the objects found in India with the outside world, an attempt has been made to fix the age of cultures. By studying the type, technology, fabric and material of the tools, pottery, terracottas, buildings, etc., time-scales have been fixed.

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CHAPTER IV

LOWER PALAEOLITHIC CULTURE

Because of a great change in the climate during the Pleistocene period as seen above, there came into existence on earth such a physical environment in which man emerged for the first time. The earliest remains so far dicovered prove Africa to be the original home of mankind. Previously the oldest human fossils found in Africa at Olduvai Gorge in Tanzania, and Lake Rudolf[1] in Kenya, by LOUIS S.B. LEAKEY and his son RICHARD were no older than two million years. Recently, three extraordinary well-preserved human fossils said to be more than three million years old were found on the surface at a volcanic deposit on the Hadar, a tributary of the Awash River located about 30 Km. south of the village of Aloha on the road leading from Dessie to Assab by a team of three scientists namely MAURICE ATIEB, a French geologist, D. CARL JOHANSON, an American anthropologist ALEMYU ASFEW from the Ethiopian Antiquities Administration.

The specimens found are a complete upper jaw, a half-upper jaw and a half-lower jaw, all with their teeth still intact. The fossils were in a stratigraphic level, some 150 feet below volcanic rock which was recently dated by the potassium argon technique (K. Ar) as 3.01 million to 3.25 million years old[3]. Besides animal fossils including extremely well-preserved remains of elephants and pigs discovered in this region provide another way of dating the specimens. The small size of the teeth has led JOHANSON to the hypothesis that the genus *homo*, "was walking, eating meat and probably using tools, perhaps bones to kill animals," three to four million years ago. It also means there was probably some kind of social cooperation and some sort of communication system. The genus "*homo* or true man" almost certainly coexisted with the 'near man" *Australopithecus* in the Afar region.

Except Sind and Kerala, the remains of Early Palaeolithic Age have been found throughout India. No human fossils of so early period have so far been discovered. Most of the stone implements have so far been collected from the surface of the earth but some from the terraces of the rivers. These terraces were so formed because of the change of climate from time to time. Along with the stone tools, sometimes animal fossils have been discovered in these terraces. These terraces, stone tools and fossils help us in determining the Geological Ages and the Stone Ages.

1. *The Hitavada*, March 11, 1973.
2. *Ibid.*, Oct. 1975.
3. *Physics News*, Vol. 6, No. 4, December 1975.

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Taking into consideration of distinct geographical features and different manufacturing traditions, scholars have divided the stone tools of this age into two groups—(1) Sohan and (2) Madras, but this division is not regarded as so rigid. The Sohan tools named after the Sohan Valley seem to have originated in the Punjab and were generally confined within its boundary. In the Sohan industry itself, there are two component factors viz. (a) the pebble element and (b) the flake element. The Sohan culture is more a pure prepared core culture in which primitive pebble elements occur as inseparable adjuncts. Handaxes and cleavers are the main components of the Madras tool which was named after the region, Madras, in which it was first of all discovered. It is an industry in which core and flake techniques are intimately associated with each other. These tools, though of equal antiquity to those of Sohan tools, remained dominant in Peninsular India. A few Sohan pebble tools have been found in Peninsular India and some handaxes in the Punjab. Both the Sohan tools and also the Handaxe tools of the Punjab occur earliest in India.

The Yale Cambridge Expedition led by DE TERRA and T.T. PATERSON carried on intensive research by concerted methods of Geology, Palaeontology and Prehistoric archaeology in India. They tried to establish correlation of the Indian Stone Age with the Himalayan Ice Age. There took place four Glacial and three Interglacial ages in Kashmir and they were somehow connected with the geological deposits known as five terraces of the rivers of the Punjab such as the Indus, the Sohan and Haro. Terraces 1 and 3 were caused by degradation during the Interglacial periods and terraces 2, 4 and 5 by aggradation during the Glacial periods. The first terrace was formed during the latter half of the second Interglacial. Stone implements have been found in these Terraces.

The concept of four and only four periods of Pleistocene glaciations throughout northern India needs to be revised. PORTER, not far from the Pir Panjal Range and to the north-west of this region, has identified only three periods of Pleistocene valley glaciation in Swan Kohistan, Pakistan. There is no denying the fact that evidences on Pleistocene glaciation in northern India is sketchy as large areas have remained virtually unexplored and, therefore, the conclusion must be regarded as only tentative.[1]

After studying the Glacial and Inter-glacial deposits in India, and having correlated them with the human cultures, DE TERRA and T.T. PATERSON[2] came to the provisional conclusion that the earliest man in the Sohan Valley lived sometime towards the end of the II Glacial Period or about 435,000 years ago. H.D. SANKALIA[3] also places the Early Palaeolithic Culture in Middle Pleistocene *i. e.*, 500,000 years B. P., but this period would extend further back if the flakes from Kashmir and the Punjab are placed in the Early Pleistocene. This shows that man in India for the first time settled in the region of Punjab and Kashmir, and then migrated to other regions where the remains of the later period have been discovered. Generally, the age of Early Palaeolithic Culture so far India is concerned ranges between 500,000 and 500,00 years.

1. *IGSI*, p. 25.
2. *Studies on the Ice Age in India and Associated Human Cultures.*
3. *SPPIP*, p. 15.

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SIWALIKS

Geologically, the Siwaliks are a formation of water deposit and ranges in age from the Late Miocene to Early Middle Pleistocene. They run continuously from the north-west from the plains of Bhanu near Peshawar to Brahmaputra in Assam in the east. These are 200,00 ft. thick and divided into three groups Lower, Middle and Upper Siwaliks. The Yale University expeditions in the years 1931-33, 1935, and 1968 made a thorough survey in the Siwaliks and the reports on fossil primates from this region are of great value.[1] All the groups except the topmost have yielded fossils of mammals including those of the ahthropoids (apes). In 1968, the discovery of a mandible with almost all the teeth present of a new species of *Gigantopithecus* opened up a new vista on the research of Man's origin in India. Three *genera* of subfamily *Dryopithecinae*, viz. *Dryopithecus*, *Gigantopithecus*, and *Ramapithecus* are found in India and all of them are located in the Siwalik region. The dating of the finds, though tentative, suggest the evolutionary relationship. It is still an open question whether the later *hominids* of Mid-Pleistocene period have an ancestry through *Ramapithecus* or *Gigantopithecus*, or neither—with a short lineage going back into the five to ten million years 'noman's-land'. The absence of later finds in India may be explained as due to intense dessication, and most probably there were major shifts in different directions which resulted in a temporary vacuum in India for further evolutionary progress towards man. All the cultural elements during the Pleistocene Period in India are devoid of any skeletal remains.

Even afterwards, a seven member Japanese team under Professor T. KAMEL of Kyoto University, Tokyo, conducting exploration of the Siwalik ranges of the Himalayas, has found some fossils of mammals inhabited there three to ten million years ago. The excavation work mainly covered areas of Ram Nagar in Jammu and Kashmir, Pinjore in Haryana and Bilaspur in Himachal Pradesh. The most significant finds are the gigantic jaw-bone of an early rhinoceros (*aceratherium*), skulls of extinct crocodile and hippopotamus, skulls, and jaw-bone of extinct elephants. The fossil of rhinoceros dated back to ten million years is the oldest of its kind so far excavated in India. The skull of hippopotamus was three million years old and elephant skull two million years. These animals had been co-existing throughout the geological age with apes, our primitive ancestors.[1]

PUNJAB

WEST PUNJAB

The archaeological sequence as worked out by DE TERRA and T.T. PATERSON of the Stone Age Industries in Sohan Valley of the Potwar region in Rawalpindi, West Punjab of Pakistan is as follows :—

The six massive flakes reported by DE TERRA and. T.T. PATERSON[2] in and above the boulder conglomerate of the high depositional surface at

1. 62nd Session, *I.S.C.*, Presidential Address at the Section of Anthropology and Archaeology by A.K. Ghosh, '*Man Evolving in India*'.
2. *The Statesman*, Delhi, Edition, Oct. 26, 1971.
3. *Studies on the Ice Age in India and Associated Human Cultures*, 304, pl. XXXIII.

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five sites in the Punjab foothills are earlier flake tools. These six massive flakes of Punjab are not available for study because these were dispersed in various museums. These are described as 'heavily worn and of quartzite'. Further they have big, plain striking platforms at high angles; the cones of percussion are well developed, but the bulbs tend to be flat relative to the size. While the boulder conglomerate is dated to the II Glacial, H. D. SANKALIA[1] regards these 'massive flakes' as belonging to the I Interglacial Period. During that period, the climate was suitable for supporting a subtropical or temperate flora (*e.g.*, pine, oak, cinnamon) and fauna (*e.g.*, Siwalik-like elephants and other animals). This type of climate would have permitted the movement of early man and animals from the plains to the hills and *vice versa*. At the same time, a sub-tropical or temperate climate would have been more congenial to man than the tense cold of the II Glacial period. Finally a dating to the First Interglacial Period would be in accordance with the sedimentological principles, which require some allowance for a time-lag between the manufacture of tools and their dispersal and deposition through the geomorphic agencies. If this reasoning of H.D. SANKALIA is accepted, the massive flake industry would be the earliest in the Indian sub-continent, and probably the earliest in Asia, because the I Glacial in India and its Interglacial would fall into the Lower Pleistocene.

Pre-Sohan Flake Industry and Second Glacial Age

The term 'Pre-Sohan' is applied to such tools as are found in first Terrace near the top of the boulder conglomerate at Malakpur, Adial, Chauntra, Kallar, Chauomukh and Jammu in Potwar, south-east of Rawalpindi. These tools can be assigned to the II Glacial Period on account of being associated with boulder conglomerate. Very few animal remains have been so far found in the boulder conglomerate. The presence of a few bones of *Elephas namadicus* suggests that the deposit cannot be earlier than Middle Pleistocene.

These are large flakes made from crude split pebbles. All of them are rolled. The upper surface is usually unflaked except for one or two small irregular scars. The under surface, having flat bulbs, but prominent ones, must be the primary flaked surface and has a large plain, unfaceted striking platform at angles varying from 100 degrees to 125 degrees. No retouch is visible except on one find from Kallar. Whether the breaking is due to their either being used or by the action of the natural agencies is not clear.

Early Sohan and Second Inter-Glacial Age

The tools found in the first Terrace of the river Sohan are known by the technical term Early Sohan Industry. Geologically, these are assigned to the II Inter-Glacial Period. These are made from varieties of fined-grained quartzite as well as fine smooth greenish-grey Panjal trap. Patination and the state of wear divide these tools into three groups, which may be called A, B & C. Group A is the earliest and is heavily patinated, deep brown or purple and much

1. *SPIPP*, pp. 35-36.

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rolled. Group B is deeply patinated like A but not worn, and Group C is less patinated and fairly fresh.

Among all these groups, there are pebble tools, scrapers and flakes, the first named predominating. There is evidence of typological development towards smaller and neater forms, but it does not synchronize with the stratigraphic evidence.

The pebble tools are all prepared from smooth, rounded rolled pebbles and small boulders. These when further subdivided give us : (a) flat-based, and (b) round pebble tools.

True discoidal cores often with a patch of cortex in the centre of one or both surfaces are also found in this group. These cores are similar to the Clactonian and early Levallosian forms.

There are two kinds of flakes. The first of them has a high-angled plain platform and, though similar to the Early Sohan B, is neater and better and more primarily flaked. In the second kind, much smaller, the angle is low and the platform unfaceted. While there is evidence of use, on these tools there is very little of secondary flaking.

The Handaxe Industry

A few tools—handaxes or bifaces—in a heavily rolled condition were found at some four sites in the Sohan Valley[1]—(1) at a site near Rawalpindi in the gravels of the II Interglacial Period (Terrace 1), (ii) at a Chauntra in deposits of the III Glacial (Terrace 2), (iii) at Adial on the surface, (iv) at Balwal, near Chakri in the gravels of the III Glacial (Terrace 2) which were derived from those of Terrace 1, (v) at Gariala near Altock in the Indus Valley in the gravels of terrace 2.

Stratigraphically, the tools at the first site are thus the earliest and here alone they are found unmixed with those of the Sohan culture. At Chauntra, Adial and Balwal, the bifaces are found in association with Early and Late Sohan tools whereas at Gariala alone, a very rolled cleaver was found. It appears that the handaxe culture had an independent existence in Punjab. Since then it is found in dated deposits, it is difficult to say which culture is earlier—the Handaxe or Sohan. Stratigraphically, the Punjab handaxes are of the Middle Pleistocene Age, and typologically, they belong to the great Lower Palaeolithic hand-axe-culture.

At Chauntra De Terra noted a parallel development of the Madras handaxe industry and Sohan industry but here also, both are independent from each other. On the basis of these tools, De Terra is of view that in the Punjab, there were two types of human localities—(1) those using flakes and pebbles and (2) Handaxes peoples. Both these people were contemporary but they never came into contact with each other. Now most of the scholars are of opinion that Sohan is the part and parcel of the handaxe culture. These tools of Chauntra have been divided into three groups on the basis of preservation which is confirmed by the typology of the tools themselves. These hand-axes of the Punjab seem to be the earliest in comparison with those of other regions of Indian sub-Continent.

1. *Ibid.*, p. 22.

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Late Sohan Industry and Third Glacial Age

The tools found in the river terraces of the III Glacial Age are known as Late Sohan tools. The wide spread of this industry in the Punjab is clear from the fact that its tools were collected from more than twenty sites. It is said to be the developed form of the Early Sohan industry. Stratigraphically and typologically, it is divided into: (1) Late Sohan A and (2) Late Sohan B. The tools of Late Sohan A occurred in the basal gravel of Terrace second which belongs to the III Glacial Age, while the tools of Late Sohan B were found at the bottom of the thick Potwar loessic silt of the III Interglacial or Glacial Stage.

In Late Sohan A some specimens are worn. Both pebble tools and flake and core tools occur, but the latter outnumber the former. Among pebble tools, side scraper like implements which appeared late in Early Sohan, are common. Three other earlier forms are also found. There are many forms of cores. Flakes are of two types : (1) simple, and (2) with retouched edges. A few parallel-sided blades and elongated flakes appeared which prove that the Late Sohan A is definitely 'Levalloisian' in character and falls into the Middle Stone Age.

Late Sohan B Tools are fresh and notworn. Mainly two types of cores occur, one of which was already noticed in Late Sohan A. Flakes again are generally of the Levalloisian type. They are mostly blades or elongated flakes, and a few are triangular or oval.

Evolved Sohan Industry and IV Glacial Age

Tools found at Dhok Pathan near Pindi Gheb on the Sil river, a tributary of the Sohan, are known to be 'Evolved Sohan.'[1] These tools belong probably to the IV Glacial Age and DE TERRA connect them with the fourth Terrace of the river. This industry includes pebbles, flakes and cores. These tools are not much different from those of the Early and Late Sohan though comparatively smaller.

EAST PUNJAB

Sirsa Valley :

The Early Stone Age sites. which were situated in the Potwar region with the whole of Rawalpindi District, went to Pakistan after the partition of India in 1947. Attempts were made by the Archaeological Survey of India to search more sites in East Punjab and these attempts have borne fruits. First success was made by OLAF PRUFER, who reported the find of Sohan tools in the valley of Sirsa, a tributary of the Sutlej near Nalgarh in 1951. Afterwards D. SEN[2] visited the area and published a short report. He observed three Terraces approximately at the height of 70 ft., 40 ft., and 10 ft. respectively from the present stream level. The tools have been found on the first two Terraces. On the upper Terrace, the gravel Terrace, the gravel is at places cemented, while on the Middle Terraces, it is loose and has a thin cover of silt.

1. This industry was discovered by Todd in 1932 but the term 'Evolved Sohan' was assigned by Movius.
2. *MI*, Vol. 35 (1955) pp. 177-84.

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The tools are made of light coloured quartzite and consist of pebble tools and flake tools. There is not much typological difference between the tools from the Upper and Middle Terraces. Both the pebble tools as well as the flakes—typologically resemble the Early Sohan of the north-west Punjab but it cannot be said whether the Nalgarh industry belongs to the II Interglacial or not, without much further work in the region.[2]

In 1954, Y.D. SHARMA discovered a number of quartzitic palaeoliths, mainly choppers, scrapers and flakes at several sites such as Dher Majra, Dhang, Dadhi and Merhanwala from the same valley. Typologically, the implements represented a Late Sohan tradition. He also found implements about a mile north of Daulatpur in Hoshiarpur District from the river Sohan (not to be confused with the homonymous river near Rawalpindi, a tributary of the Indus, which has given its name to the Punjab Palaeolithic industry). These implements show affinity with the Late Sohan tradition. The existence of such artefacts in Sirsa and Sohan Valleys considerably enlarges the area of the Sohan industry.[2]

Beas and Banganga Valleys

In 1955, B B. LAL[3] found Sohan type of tools in the Beas and Banganga Valleys in the Kangra District. He also noticed five terraces at Guler and elsewhere and tried to correlate the tools with the terraces. Terrace1 yielded only unifacial choppers while Terrace 2 yielded these as well as 'chopping tools' and one pebble handaxe, a core and six Clactonian flakes and proto-Levalloisian flakes; Terrace 3 gives similar material but without the proto-Levallosian flakes. In 1957, H.D. SANKALIA and B. SUBBARAO also visited this area and they also examined the tools.[4] According to them, the tools are of the Early Sohan type, though it must be said that the percentage of genuine tools is indeed very small, and many of the choppers on pebbles and flakes might be just pebbles and flakes.[5]

R.V. JOSHI and S.Z. ROZIKI after studying the valleys of Beas and Banganga came to a different conclusion that the river terraces were not formed by the rivers but by the tectonic movements of the earth. Ghilakhana was a factory site during the Stone Age because a large number of tools have been found. Even at Adiala, there was a bigger factory site having about at least six hundred implements. These implements are known as Late Sohan A and Late Sohan B. G.C. MOHAPATRA[6] and R.K. PANT have also carried on their research work in this region. Besides Dehra Gopipur and Haripur, R.V. JOSHI discovered some sites at Kotta (between Jvalamukhi and Nandaum), Nakhurkhad Valley between Dhavala and Thana, Bongoti and Jamal (Thorkhad Valley) where a few stone tools were found.[7]

1. *SPPIP*, p. 31.
2. *I.A.R, 1954-55* p. 58.
3. *AI*, No. 12, pp. 58-92.
4. *I.A.R., 1957-58.*
5. *Ibid., 1955-56*, p.4.
6. "Pareliminary Report of the Exploration and Excavation of Stone Age sites in Eastern Punjab', *BDCRI, Silver Jubilee Volume* 1966, pp. 22-37
7. "*Prehistoric Exploration in the Banganga and Beas Valleys, October-November 1960.*". Type script.

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Besides Sohan type of tools, handaxes and cleavers were discovered in East Punjab at the sites Nandrul, Kotla, Dhavala Thana and Painsara. Though the number of these tools is yet small, it proves that like West Punjab, this area too had come under the influence of the handaxe-cleaver culture.[1]

KASHMIR

The right bank of the East Liddar at Pahalgam just below the golf ground yielded a massive flake and a crude (Abbevillian) handaxe in 1969 from well-stratified deposits dating to the II Glacial and II Interglacial respectively. The discovery of the crude handaxe and the massive flake at the same locality, and in practically the same part of it, but in two different deposits by about eight feet of boulder conglomerate seems to be the product of the same people over the course of time but they do not represent two separate and distinct cultures or ethnic groups as postulated by De Terra and T. T. Paterson in Punjab where two different types of Sohan and handaxe tools of the II Interglacial were found at different sites. Further work at Pahalgam and surveys in the surrounding region have produced nine more tools from deposits attributable to the II through III Glacial periods.

This massive flake embedded in the boulder conglomerate of the right bank of the East Liddar at Pahalgam like the six massive flakes of the Punjab is an earlier flake tool. H.D. Sankalia[2] regards this massive flake of Kashmir as belonging to the I Interglacial which will fall into the Lower Pleistocene.

During the drier loessic phase at the time of Interglacial Period, people from Kashmir and Punjab appear to have migrated to the different regions of Indian sub-continent when the conditions over there became unsuitable. The handaxe-cleaver and pebble tools of Peninsular India seem to be more advanced and varied than those of Punjab. Besides people from other countries might have settled in Peninsular India. They selected places where there were facilities of water, food and raw material for tools. As their tools are sometimes found in large number at one particular place in separate regions, it is inferred that their population settled in pockets. Like Punjab, there is no clear and undisputed stratigraphical evidence to determine the typological evolutionary development of tools for we have no geological and climatic evidence. No doubt, attempts have been made by studying the terraces of the rivers but nothing can be said positively and definitely. The reason is that because of different geographical and physical features of the regions, the terraces containing stone tools and fossils formed by the rivers are not in uniform order.

RAJASTHAN

The Lower Palaeolithic Culture was concentrated in the south-eastern region of Rajasthan where early stone implements have been discovered in large numbers.

1. 'Early Stone Age discoveries in the Beas-Banganga region' *Cultural Forum*, IX, 1968, New Delhi, pp. 96-98.
2. *SPPIP*, pp. 35-36.

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First, surface finds have been made available from Jaipur, Bundi and Indergarh.[1] Recently, a survey of the Berach, Gambhiri, the Banas and other tributaries of the Chambal, and Chambal itself was made, and the sequence or order of river deposits was determined as follows :— mottled clay, gravel clay and gravel silt.

Besides a large number of tools were collected from the Gambhiri near Chitor[2] and Nimbhahere[3] from Tajpura[4] on the Ruparel, from Nagari[5] on the Berach from the Wagen[6], from Sonit[7] and Bhaisorgarh[8] and a number of sites[9] on the Chambal. The nature of the stratigraphy and tools does not differ much at these places.

Ten sites have been discovered on the Banas river between Hamirgarh in Bhilwara District and Tonk.[10] At Bhangarh (District Alwar), on the Sanwan, another affluent of Chambal, stratified deposit consisting of two gravel beds intercalated by silt and capped again by silt have yielded pebble tools, handaxes and Levallois flakes.[11]

All these tools may be broadly divided into two categories—(1) Handaxes and cleavers of the Madras and (2) Flakes and pebble choppers, and scrapers of Sohan. Handaxes range from crude Chellean to advanced Acheulian types. Flakes are mostly of the Clactonian type though proto-Levallois and typical Levallois elements also occur. The excavations at a number of sites but particularly in Chitor District have stratigraphically established the co-occurrence of palaeoliths of Sohan and Madras traditions.[12] According to some scholars, people representing two different cultures of Sohan tools of Punjab and handaxes of Madras, lived side by side. H.D. SANKALIA[13] does not regard the Sohan culture as a quite separate cultural unity but it is only a pebble element in the handaxe culture. The raw material used for making tools is always quartzite and only occasionally sandstone. As most of the tools are handaxes, the Lower Palaeolithic culture of Rajasthan is known as Handaxe culture.

GUJARAT

The whole of Gujarat was once the home of early man because not only northern and central Gujarat but recently southern Gujarat, Saurashtra and Kutch have also yielded Early Stone Age tools. Long back, early stone tools were collected from the surface of the earth in Gujarat. BRUCE FOOTE for the first time described systematically the stratigraphy of the Sabarmati. Afterwards H.D. SANKALIA[14] surveyed the rivers Sabaramati, Orsang, Mahi, Karjan, Bhadar, Bhajodi, etc., in order to discover stone tools.

1. *Catalogue of Prehistoric Antiquities in the Indian Museum at Calcutta*, 1917, pp. 66-67.
2. *I.A.R, 1954-55*, p. 58.
3. *Ibid.*
4. *Ibid.*
5. *Ibid., 1955-56*, p. 68.
6. H.D. Sankalia and his colleagues discovered a very rich stratified site on the Wagen about thirteen km. south-west of Chitor.
7. *I.A.R, 1956-57*, p. 5.
8. *Ibid.*
9. *Ibid.*
10. *Ibid, 1958-59*, p. 42.
11. *Ibid, 1955-56*, p.68 and *AI*. 14, p. 86
12. *I.A.R, 1956-57* p.5
13. *SPPIP.*
14. *Investigations into Prehistoric Archaeology of Gujarat.*

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Sabarmati Valley

Several early palaeoliths were found on the different sites of the river Sabarmati, such as Warasora, Gada, Hirpura, Aglod, Pedhamli, Phudera, Rampur, Hadol and Valasna. The chief types among them are handaxes, cleavers, flakes, scrapers and pebbles. The implements are mostly fresh and only a few are rolled or semi-rolled with worn-out edges and flake scars. As Madras handaxes and Sohan pebbles were found together here, KRISHNASWAMI[1] and others[2] expressed the view that this valley was the meeting place of the Sohan and the Handaxe cultures. It is due to the fact that in any hndaxe-cleaver assemblage, where the tools are made on pebbles the pebble tools are the necessarily of the first stage.

The Lower Palaeolithic is known as handaxe industry because handaxe remained dominant too here. No stratigraphic evolution in the tool types is available. Along with the very fine ovate and almond shaped, primitive handaxes were also obtained from the upper part of the reddish silt. As there is no distinction in the tools of upper and lower terraces, this industry of the tools may be called a mixed one. These tools may be divided into two classes, not on the basis of stratigraphy but on typology—(1) the inferior tools with regular outline, wavy edges, comparatively smooth 'step' flaking and no pebble cortex at the butt-end or over part of both the surfaces, and (b) the superior tools with regular outline, wavy edges, comparatively smooth 'step' flaking and no pebble cortex or the cortex patch at a definite place.[3]

However there are three specimens—two handaxes, one pear-shaped, and other very thin, perfectly symmetrical ovate and one U-shaped cleaver from the upper part of the reddish silt which are so fine; all the three having been made on a flake and then finished off by skimming flake scars so as to suggest a late typological evolution corresponding to the uppermost phase of the alluvium. Typologically these three groups of handaxes closely resemble: (i) the Abbevillio-Aeheulian, (ii) the Middle Acheulian, and (iii) the Late Acheulian industries of Madras, etc., as well as those of Western Europe.

The valleys of the Mahi, the Orsang and the Karjan have yielded similar results. At Bahadurpur on the Orsang, the tools are made on quartz and quartzite. Unlike the Sabarmati specimens, the majority of the Orsang tools are rolled or semi-rolled and only a few are fresh. Typologically, these comprise: (a) hand-axes, ovate and pear-shaped, (b) flakes, one of which is a definite blade and (c) pebble tools.

The Karjan, a tributary of the Orsang has also given a similar promise of the Old Stone Age culture. Here tools, handaxes, U-shaped cleavers of Vaal technique, beautiful discoids and pebble tools of trap have been found.[4]

Recently Early Stone Age tools were discovered even from Saurashtra. Handaxes, cleavers, chopping tools, scrapers and the like were found on surface and *in situ* in coarse gravel of the section on river Bhadar at Rojdi. Most of them are manufactured from chert. Another Early Stone Age site was discovered on the

1. *AI*, No 3 (1947), p. 32 ; *AI*, No. 17 (1961), pp. 10-73.
2. Lal, B.B. in, *AI*, No. 12, pp. 86-89.
3. *TVA*, p. 127.
4. *Investigations into Prehistoric Archaeology of Gujarat*, Pl. XII.

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banks of Dokamardo nullah about 2.40 Km. from Halved on the Halved-Dharngadhra road. The tools included handaxes, side scrapers and cleavers. From a site on the river Sherdi District Junagarh, rolled Acheulian handaxes on metamorphosed sandstone have been found. The Hiran and Saraswati rivers in the south-west of the Peninsula at Somanath or Prabhas Patan yielded excellent evidence by way of tools —handaxes and cleavers on basalt—and the existence of sodified oyster bed over the pebble bed containing Early Stone Age tools.

An attempt was also made to discover Early Stone Age tools in the area of Kutch. Near Bhuj were discovered principally tools of Middle Palaeolithic period but some of those might also belong to the end of the Early Palaeolithic. Anyway, they suggest a transitional phase. The Early Stone Age tools were discovered near the village of Angia. This is situated at a distance of about 5 Km. south-west of Nakhrana and to the West of Bhuj.

In 1949, F.E. ZEUNER[1] on the basis of the study of stratification of Sabarmati, Mahi, Orsang, etc., has presented climatic cycles of Gujarat beginning with the present and going back to the past. The climatic cycles of pluvial, inter-pluvial, humid and dry of the hot temperate lands in the Pleistocene Period have been noticed even in Gujarat. It may be briefly enumerated below from the present to the past.

(p) Long dry season with a short wet period.
(q) Dry phase—Pottery with microliths and Iron.
(r) Slightly wet phase—Microliths and Skeletons (fossil soil).
(s) Dry phase—Dunes blown over the land surface.
(t) Slightly damp—Flat land surface.
(u) Mainly dry phase—Second river aggradation with silt and wind-blown sand; later pure aeolian sand.
(v) Wet phase—Red soil formed by a damp climate. River bed shifted westward.
(w) Dry phase—River aggradation by silt. Palaeolithic man present.
(x) Wet phase—Cemented gravel. Palaeolithic man first appears.
(y) Dry phase—Mottled clay in the river bed. First Sabarmati.
(z) Dry phase—Laterite.

The Lower Palaeolithic Industry of Gujarat is later than that of Laterite and Mottled clay. The early Stone tools were found from the Terrace of cemented gravel and the upper Terrace of silt gravel. Definitely, they belonged to the Pleistocene Period. The main source for determinining the age of this industry is only by the comparison of tool types because no relation of dry-humid climate of Gujarat can be established with Glacial and Interglacial periods of north India. F.E. ZEUNER[2] has assigned the Early Stone industry of Gujarat to the end of III Glacial Age or some later time.

MADHYA PRADESH

Madhya Pradesh is an important region for the study of Stone Age Cultures. Like the Siwaliks, the Narmada Valley yielded potential Pleistocene fossils and

1. *Stone Age and Pleistocene Chronology in Gujarat*, p. 23.
2. *Ibid.*

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human artefacts. In other valleys also such as Chambal, Shivana, Betwa, Kalisindh and Son, a large number of different palaeoliths have been discovered. The Hand-axe Culture remained dominant in this region.

Narmada Valley

A survey was made of the Narmada Valley from time to time by scholars. A palaeolithic tool was found at Bhutra in 1878 in association with fossil mammals.[1] Later, the Valley was surveyed by DE TERRA, and T.T. PATERSON in 1935 and a correlation of the stratigraphy, the tools and fossil evidence was attempted. T.D. MC COWN, BANERJI, H.D. SANKALIA, SUBBARAO, D. SEN, GEORGE ARMAND, R.V. JOSHI, A.P. KHATRI, S.G. SUPEKAR and WAINRIGHT surveyed the Narmada and its tributaries, and came to certain conclusions.

Stratigraphy :

The Narmada stratigraphy is complicated because it is a rift valley. Attempts to determine the stratigraphy have been made at different places. After the study of Hoshangabad, Narasimhapur on the Narmada, DE TERRA and T.T. PATERSON[2] proposed a stratigraphical sequence of seven deposits and mention lateriate at the base of the basal gravel. One of them suggests that the Narmada Lower Group represents the true Acheulian and Early Sohan and the Upper Group, the Late Sohan industry. He equated the Narmada Lower Group with the II Inter-glacial terrace of the Punjab, and assigned it to Middle Pleistocene. But no clear stratigraphical picture as postulated by DE TERRA, has been noticed by subsequent observers and all his conclusions have not been supported.

A.P. KHATRI[3] held that red greasy clay was the earliest deposit and further that at Mahadeo-Piparia, there was a development of the handaxe industry from the pebble tools. The stratigraphic position of the red grey clay has been questioned by H.D. SANKALIA and D. SEN.[4] No evidence for the evolution of the Handaxe Culture is noticeable. S.G. SUPEKAR's[5] two excavations at Mahadeo-Piparia revealed that the so called basal bouldary gravel not only underlies the red clay but two other deposits of yellow brown sandy silt and yellow brown hard compact kankary silt. T.D. MC COWN[6] attributed the accumulation of the thick pebble bed at Hoshangabad and other places to colluvial action and thought that the silt was caused by aggradation or a different agency. At Maheshwar, the stratigraphy is much clearer in comparison with other localities. The deposits divided into six sections are quite consistent and give a good picture of the Narmada Pleistocene history in this part of the country. G.J. WAINRIGHT[7] from his observation and study of the remains of the lower Narmada thinks that they belong to the last Intergracial, and thus they are of the Upper Pleistocene Age.

1. *Catalogue of Prehistoric Antiquites in the Indian Museum* by J. Coggin Brown, Archaeological Survey of India, Simla 1917, p. 2.
2. *Studies on the Ice Age in India and Associated Human Cultures*, pp. 313-26.
3. *Studies in Prehistory, Robert Bruce Foote Memorial Volume*, pp. 97-98 ; *I.A.R. 1959-60*, pp. 22.
4. *IP*, pp. 9-12.
5. *SPPIP*, p. 115.
6. *Ibid.*
7. *The Pleistocene Deposits of the Lower Narmada*, p. 44.

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Fossils

The stretch of the river between Narsimhapur and Hoshangabad has indeed become 'classic'. This is the region which has given the largest number of fossils hitherto believed to be of Middle Pleistocene Age, though their state of preservation, mineralization and even the forms of teeth, etc., suggest an Upper Pleistocene date for some of the specimens.[1] The important fact about these fossils is that old forms continued to survive for a long time after they perished in the Siwaliks. The fossil fauna include *Elephas namadicus*, *Bos namadicus*, *Equus Namadicus*, *Heraprotodon*, *Bubalus*, *Sus* and *Cervus*. As this region has also yielded a large number of Early Palaeolithic tools, it is therefore, expected that skeletal remains of man himself are likely to be found.

Tools

De Terra and T.T. Paterson do mention the number of handaxes and cleavers they found out from certain localities, but we do not have any idea of the total number and the proportion of various tool types. A.P. Khatri[2] is reported to have made a vast collection but no detailed statistical account is yet available except description of a few selected tools—Chopper–chopping tools, Early Acheulian, Middle Acheulian and Late Acheulian. D. Sen also collected tools while exploring Hoshangabad, Narsimhapur and Mandala but only a brief report of his work has been published. Mc Cown prepared a fine collection from the Pira Nala and a few other localities. S.G. Supekar's excavation at Mahadeo-Piparia yielded 860 specimens consisting of choppers, scrapers, handaxes, cleavers, handaxe-*cum*-cleaver, cleaver-flakes, flakes and cores. The cores and the flakes are found in large number, but the handaxes and cleavers are few. The choppers occur at all levels.

At Maheshwar between Sahasradhara and Mandaleshwar, over 400 palaeolithic tools were collected. Among them, there is a large number of flakes, cores, cleavers and a few handaxes. The number of cleavers is, on the whole, large, because it was more convenient to convert flakes into cleavers. These are of several types. A few Levallois flakes of quartzite have been found in the second gravel.[1] Gorge Armand collected from Durbaeli Nala, Maheshwara over seven hundred tools, a large number of which have a pebble cortex and might be classified into various groups of choppers. From the above description, it appears that in Narmada Valley, Acheulian type handaxes and cleavers appear together with those made on pebbles and pebble-flakes, but there is no evidence of stratigraphical correlation.

Exploration of the Chambal and Stratigraphy

On the Chambal basin, the first discovery was of a grey quartzite 'boucher' from Neemuch, in the latter half of the last century, by an unknown geological explorer. V.S. Wakankar discovered a number of palaeoliths at Mandsaur. Afterwards, the river Chambal and its tributaries, particularly the Shivna have been carefully surveyed by A.P. Khatri. The most important sites are the two localities, Ram-

1. *SPPIP*, p. 114.
2. *Studies in Prehistory, Robert Bruce Foote Memorial Volume*, pp. 113-120.
3. *EMN*, p. 20.

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ghat and Shamshan Ghat at Mandsaur and Nahargadh on the Shivna. The stratigraphy is comparatively simple.

1. Basal trap rock.
2. Cemented pebble gravel.
3. Yellowish silt.
4. Fine well-cemented gravel.

The cemented gravel has yielded large flakes with prominent bulbs of trap, as well as Abbevillio-Acheulian handaxes. Other collections include a large percentage of handaxes, cleavers, scrapers, cores with W shaped jagged edges and flakes. The large flakes on trap with prominent bulbs lying right on the rock *in situ* prove the existence of the early Clactonian technique, and recall similar flakes on the Narmada. The area comes under the category of handaxe-cleaver tradition but pebble tools are found within the basins of the Gambhiri and Chambal, in association with handaxes and cleavers, but their number is not large.[1]

The Betwa Valley

The Betwa Valley was surveyed by SINGH and KHATRI.[2] The most interesting and important area is Lalitpur where several workshops were discovered. In the Shahzad river in the neighbourhood, the tools were found in a cemented conglomerate. Tools have been collected from six localities on the Biana Mala, the Chhatrapal temple and from the river section. Tools were made on granite flakes. Both the flakes and cores were then made into handaxes and cleavers. Fine shallow flake scars and symmetrical outlines have turned many of these handaxes and cleavers into works of beauty. Though there are a few choppers and scrapers, the large majority of the tools consist of handaxes and cleavers of various types. The Chhatrapal temple site about two Km from the Lalitpur railway station was a secondary factory site. Here, the Stone Age man employed sandstone in preference to the local granite. and this had to be imported probably from Jiron at a distance of at least nine Km. In the Bina area, Kathora also yielded tools *in situ* as well as from the surface in the loose gravels.

Sonar Valley

The rivers Sonar, Kopra and Bearma were explored by R.V. JOSHI. These yielded industries of all the three periods. There are four sites on the Sonar, Ghogra, Harat, Narsinghgarh and Mariada. In all 114 tools were collected; of these 59 are rolled, 36 semi-rolled and 9 only fresh. These comprise the following tool types: handaxes, cleavers, scrapers, flakes and cores. The handaxes may be classified into three groups—(1) handaxes on pebbles, (2) handaxes on flakes (unificial) and (3) ovates.[3]

Son Valley

Son basin covers the districts of Bilaspur, Shahdol, Sidhi and Jabalpur, and this area was explored by NISAR AHMAD. Inspite of the fact that the region is forested, some 167 tools were collected from 35 sites. Of these 26 are from *in situ*

1. *I.A.R., 1956-57*, p. 5.
2. *ibid., 1959-60*, p. 22-23; *1961-62*, p. 22.
3. *SPPIP*, p. 111

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gravel. Over fifty per cent of the tools are made on quartzite, thirty per cent on chert, and the rest on sandstone. The tool types are handaxes, cleavers, scrapers, choppers and chopping flakes and flakes.[1]

UTTAR PRADESH

South Uttar Pradesh seems be older than the Himalayas and the Gangetic plains because here, stone tools of the different periods were found. The Singrauli basin in Mirzapur District was visited by scholars from time to time. Here COCKBURN[2] had discovered palaeolithic tools in 1883. DE TERRA[3] pointed out the geological importance of this area but he himself could not survey it. This area was also examined for a short while by F.E. ZEUNER and KRISHNASWAMI in 1949, and the results of the latter's study were published.[4] The lower gravels of the Rihand, the Bichi Nabi and other rivers of the Singrauli basin yielded tools made of coarse-grained grey stone known as quartzite. These comprised primarily: (i) crude handaxes on pebble as well as fine ovate type handaxes on flakes, (ii) cleavers, (iii) cores, (iv) choppers and chopping tools, and (v) Levallois and proto-Levallois flakes. Evidently, it is a mixed industry, and since all the tools hail from one and the same layer, it is difficult to say that the pebble tools forming choppers were the earliest and the handaxe etc., later and the Levallois flakes still later. It is, however inferred that the few choppers and proto-Levallois flakes suggest Sohan influence on the pre-existing handaxe culture.[5] A few dolerite tools largely of Series I were found on surface.[6]

In the Belan Valley of Mirzapur District, tools of Early Stone Age were found. Most of these tools are of sandstone which was available from the Kaimur Hills. It was easy to prepare different types of tools from sandstone. These include handaxes, cores, flakes, pebble tools, etc. The handaxes procured from this place are the biggest in size in the whole of India. These are 1 ft. 6 inches in length and three inches in breadth.[7] Sites of Early Stone Age were also noticed at Bataubir near the Kanhaiya hillock in District Allahabad and the Lekhaiya hillock in District Rewa.[8]

An extensive Stone Age site, covering an area of five square miles, was found at Bariyari, 20 Km to the east of Kauśāmbī on the right bank of a tributary of the Yamuna in Banda District.[9] Three terraces were noticed at the site. Terrace 1 yielded large number of tools comprising handaxes, cleavers and scrapers representing a bifacial industry of the Madras complex, besides flakes and cores. Though the majority of the tools were made on cores, flakes and flake-tools in Clactonian tradition were also fairly prominent. Terrace 2 and Terrace 3 also produced tools but they are of later period. Rolled Early Stone Age tools comprising handaxe, chopper, etc., were discovered on a terrace of Yamuna near Kalgi, district

1. *Ibid.*
2. *JRAI*, 1988, pp. 57-65.
3. *Studies on the Ice Age in India and Associated Human Cultures*, p. 313.
4. *AI*, No. 7 (1951), pp. 40-65.
5. Ibid., pp. 40-65.
6. *I.A.R., 1959-60*, p. 48.
7. *Dharmayuga*, 9th April, 1972.
8. *I.A.R. 1963-64*, p. 39.
9. *Ibid., 1955-56*, p. 4.

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Dehra Dun.[1] A factory site yielding Early Stone Age was located on the flat top of Ramchandra hill about 402 m. north of Narini town in Banda District.[2]

Sites of Early Stone Age were discovered in the Districts of Hamirpur and Jhansi. Two cleavers were found *in situ* in the gravel of Shanzad at Lalitpur. Near the Kshetrapala temple at the same place, a gravel-deposit yielded about 50 tools of Series I, of which 15 were *in situ*. The Bina Nala, a small tributary of the Shahzad, yielded about 200 consisting of Acheulian handaxes and cleavers. A number of tools of Series I were also collected at Burwar, Barval and Phaura.[3] H.D. SANKALIA carried out a small excavation at an open Early Stone Age factory-site near Lalitpur. The classified artefacts collected from this small-scale excavation were sixty-five handaxes, forty-nine cleavers, forty-three cores, four hundred-and-ten rounded pebbles, two hundred-and-seventy angular fragments, eighteen worked pebbles and seven hundred-and-twenty-three waste flakes.[4]

BIHAR

Though from the earliest historical times, Bihar has dominated Indian history, of Early Stone Age only a few tools have been found. The discovery of these tools specially in south Bihar proves that it was inhabited by early men during this period. The stone industry of this region seems to form a part of the Handaxe Culture complex. C.W. ANDERSON collected a few palaeoliths in 1917, but nothing can be said about them in the absence of proper geological context and description. A. K. GHOSH and D. SEN discovered during their exploralion in Districts Singhbhum a large number of palaeolithic sites along the Subarnarekha, Sanjay and Kharkai rivers and their tributaries. Tools of Early Stone Age comprising the cruder Abbevillean to finer Acheulian types were unearthed in stratigraphic sequences.[5] Palaeoliths from Chaibasa[6] and Chakradharpur consisted of tools of Series I on quartzite or sandstone. At Choramera, a fine factory site of handaxes was available.

Around Chaibasa, near Chakradharpur, on the left bank of the Roro, near Tilimdah, three alluvial terraces at the heights of 60 ft., 40 ft., and 20 ft., respectively, were observed. The topmost and middle Terraces are old and covered with a gravel spread; the topmost being implementiferrous.[7] In all thirty-five tools of varied material were collected (from the surface of the topmost Terrace and Terrace 2) around Chaibasa. The tools include: (i) Pebble-butted handaxe, Abbevillian and Acheulian type hand axes and cleavers with straight and oblique edges, (ii) Bifacial chopping tool and (iii) Flakes (including choppers). Almost a similar number of tools and of the same character has been reported from the area of Nimidh station in south Manbhum.[9]

1. *Ibid., 1961-62*, p. 103.
2. *Ibid.*, p. 54.
3. *Ibid., 1960-61*, p. 35.
4. *Ibid,, 1961-62*, p. 57.
5. *JBORS*, III, 1917, pp. 344-62.
6. *I.A.R., 1961-62.*
7. *Ibid., 1960-61.*
8. *Ibid., 1959-60.*
9. *Science and Culture*, Vol. 17, No. 4, p. 164.

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Besides Singbhum District, tools of Early Stone Age were discovered in other Districts also. Palaeolithic handaxes were found at Banda and Rajrappa in Hazaribagh District.[1] They were also obtained at Rajapokhar, Bhaljore and Rajdot in Mali Pahar in Bhagalpur District.[2] In the Jethian Valley in Gaya District, exploration yielded Early and Middle Stone Age tools. Early Stone Age tools comprising handaxes, a flake, a core tool and a side-scraper on flake were found for the first time. The handaxe made on a flake had a faceted platform.[3] Early Stone Age tools represented by handaxes, scrapers and waste flakes were recovered from a pebble deposit in the bed of the river Karnakolajore in the suburb of of Deoghar.[4] The discovery of a few tools from Bhimbandh from the bed of a local stream in the Monghyr District is indeed very interesting.[5] The Bhimbandh tools are from the surface and include peariform and ovate handaxes and discoids on quartzite. The Jamapur hill locally known as Kali-Pahar yielded implements of the Early and Middle Stone Ages which comprised handaxes, cleavers and flakes.[6]

BENGAL

BALL discovered in 1882 a handaxe at a site near Bankura. V.D. KRISHNASWAMI underlook an intensive exploration in parts of Districts Bankura and Purulia along the river Kasai (Kangsabati) and its affluents Kumari and Jam. The exploration brought to light sites of tools of Series I and tools of Series II and microliths.

D. SEN[7] carried out an exploratory survey in District Bankura. Several Early Stone Age sites were discovered along the valleys of the Dhalkishore, Kansabati and Kumari. The industry was essentially Abbevilleo-Acheulian in type. Artefacts comprising choppers on pebble and core, both unifacial and bifacial, handaxes and cleavers on core and flake, and scrapers on core and flake were found to occur in laterite gravels. Typologically, this industry recalls those of Singhbhum and Mayurbhanj.

A.K. GHOSH[8] under the guidance of D. SEN discovered several lithic sites such as Astajuri, Bhedakui, Bamandih and Nayagrah in District Midnapur. The tools included choppers, handaxes, cleavers, scrapers and awls, and were found embedded in the laterite or in the scree deposits.

The Department of Archaeology, Government of West Bengal located sites yielding Early Stone Age tools comprising handaxes at Barkola in District Bankura, Jibdharpur in District Bhirbum and Bonkati in District Burdwan.[9] It also discovered handaxes, ovates, cleavers and other tools of Acheulian assemblage from the cliff-sections of the streams Hanumati, Amruhasa, Navgasai and Liki Saira.[10] On the basis of typology, patination and state of preservation, the industry may be divided into an earlier and a later phase.

1. *I.A.R., 1960-61*, p. 58.
2. *Ibid.*, p. 57.
3. *Ibid., 1967-68*, p. 8.
4. *Ibid, 1963-64*, p. 5.
5. *MI*, Vol. 40, p. 69.
6. *I.A.R., 1961-62*, p. 5.
7. *Ibid.*, p. 48.
8. *Ibid.*, p. 59.
9. *Ibid., 1963-64*, p. 59.
10. *Ibid., 1967-68*, p. 49.

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Among the Early Stone Age sites, Susunia is the most important. On one side, there flows the Ajay river and on the other, there is a hill. Here about two thousand Stone Age tools including handaxes, scrapers, etc., were discovered.[1] This place was very convenient to the early palaeolithic man as stone for manufacturing tools and water for drinking were easily available.

ASSAM

Recently from the Garo hills in Meghalaya, T.C. SHARMA discovered chipped stones which were described as handaxe-type tools and choppers and scrapers. Out of sixteen handaxes, twelve were found at Rongram, three at Ronghigiri and one at Molmegiri. The choppers and scrapers are very few. With the study of the various sections of the rivers, it seems that this part of Assam had probably undergone the same climatic phases during the Pleistocene as in the main Peninsula. There was the evidence of glaciation in the hill ranges of southern Assam with traces of terraces and moraines. The section on the Rongram river, Garo Hills, Meghalaya shows the basal rock, a pebble gravel and over it a thick deposit of dark red silt.[2]

ORISSA

In 1875, V. BALL picked up four stone implements from four different places in Orissa.[3] Afterwards in 1942, N. K. BOSE and D. SEN conducted excavation of the Lower Palaeolithic sites at Kuliana in Mayurbhanj and prepared the stratigraphical sequence.[4] G.C. MOHAPATRA carried on his investigations from the year 1956 to 1959 and came to the conclusion that Lower Palaeolithic Culture was not confined only to Mayurbhanj or Kuliana but it was widespread.[5] He altogether discovered twenty sites of Early Stone Age. These are situated in the valleys of the rivers Bahamani, Mahanadi, Baitarani, Burhabalang, and Suvarnarekha in the Districts of Dhenkanal, Mayurbhanj, Sundargarh, Keonjhar, etc.[6] The south-western part has recently been explored by K. C. TRIPATHY. At Burhabalang in Mayurbhanj, G.C. MOHAPATRA fixed the stratigraphic sequence which is as follows[7] :—

1. Highly wet Phase — Laterite
2. Dry Phase — Clayish layer

According to BOSE and SEN, man's tools might be found in this bed.

3. Wet phase — Boulders and Gravels

This contains indubitable evidence of man, his tools.

4. Dry — Silt
5. Wet Phase — A thin layer of finer gravel.

1. *Dharmayuga*, 2nd July, 1972.
2. Sharma, T.C., *Prehistoric Archaeology of Assam.*
3. *Proceedings of the Asiatic Society of Bengal*, 1876.
4. *Excavations in Mayurbhanj.*
5. *The Stone Age Cultures of Orissa.*
6. *I.A.R., 1957-58*, p. 41; *1958-59*, p. 36.
7. *The Stone Age Cultures of Orissa.*

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This fine gravel contains smaller tools and indicates the existence of a different kind of man and culture. It belongs to Upper Pleistocene.

6. Drier climate	Silts got wealthered red.
Recent times	called Holocene.

On the Burhabalang, the most important site is Kamarpal. Here, the clay contains a few plant fossils. At Mukramatia and Mahulia, however, the basal deposit consists of shale and limestone. Some fossils have been detected in the shale band which suggest a Lower Pleistocene age for the formation.[1]

Of the tools found from Kamarpal and Kuliana in Orissa, there is undisputed data for an earlier dating and evolution of the tools. A majority of the tools from the boulder conglomerate were made on ovalish pebbles by removing a few flakes; the handaxes or bifaces were also crudely made only showing more work and these handaxes showed further improvement and resemble Acheulian ones[2]. The only weak point in this is that we are not sure whether the lower part of the boulder conglomerate does not contain any evolved handaxes. Were it to contain only pebble tools as at Olduvai in East Africa, it could have been definitely asserted that in Orissa, we have a development of the handaxe industry from the pebble tools which might be dated to the Lower Pleistocene.[3]

Most of the tools are found *in situ*. Their stratigraphic horizon is the coarse gravel at the bottom of the sections. Otherwise, they occur loose in the gravel bed of the rivers, on the surface in the forests and slopes of the hills and in the secondary laterite gravel quarries. Handaxe, cleaver, scraper, crude point, flake and core are the main tool types. Bose and Sen think a few choppers as Sohan type of tools but in fact they seem to form along with flakes an invariable concomitant of the handaxe culture. There is no marked distinction between the core and flake industries as such. The technique is mainly bifacial and the average standard of tool-making is mediocre. There are a few specimens showing the typical Vaal technique. No Levalloisian or proto-Levalloisian element is seen. Faceted platform flakes and prepared cores are completely absent. Medium grained brown quartzite is the common raw material.[4]

No evolution of the technique can be worked out with the help of stratigraphy. Tools of both crude and the developed facies occur in one and the same gravel layer. Hence these are classified on the ground of technique and type in three stages[5] which mark a gradual development from the cruder to the finer ones.

Stage I	Handaxes primarily—which are crude having a pebble butt, and show large and deep flake scars, mainly from the tip, and irregular technique.
Stage II	In this group, the tools are better made and there is the evidence of soft-hammer technique because the flake scars are flatter and thinner. Cleavers appear for the first time.

1. *SPPIP*, p. 54.
2. Summarised from Bose, Nirmal Kumar, "Geological and Cultural Evidences of the Stone Age, in Mayurbhanj", *MI* Vol. 38, pp. 40-55.
3. *SPPIP*, p. 54.
4. *The Stone Age Culture of Orissa*, p. 136.
5. *SPPIP*, p. 55.

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Stage III — The handaxes are extremely well proportioned and made mostly by controlled and soft hammer technique.

MOHAPATRA makes a special mention of smaller tools, particularly handaxes, and points in stage II and III respectively and infers that these herald the arrival of the Middle Palaeolithic Culture.

The Tel and its major tributaries in southern Orissa have been thoroughly examined for Pleistocene deposits and the lithic implements therein. According to K.C. TRIPATHY[1], the sequence of evolution of lithic industries comprises Pebble, Flake and Flake-Blade industries. Out of 34 specimens of pebble industry, 22 specimens are choppers and scrapers. The choppers exhibit crude technique whereas the scrapers, points and miniature handaxes show moderate skill of stone tool teehniques. The pebble tools and flakes appear to be integrated in the industry. This type of stone tool tradition is absolutely new and never reported earlier from north Orissa.

MAHARASHTRA

Maharashtra consists of two geographical units—the Deccan plateau and the Konkan. K.R.U. TODD, H.D. SANKALIA, S.B. DEO and others explored the valleys of the rivers of this region, and proved that early man lived all over Maharashtra during this period. On the Godavari-Pravara basin, inspite of minor differences at some places, the stratigraphy seems to be basically the same. Typologically, the palaeolithic industry of this region is known to be handaxe-cleaver complex and the tools are usually made up of trap and dolerite. Besides, fossils of animals like the *Bos Namadicus*, *Elephas antiquus* and *Rhinoceros* have been found at some sites such as Nandur, Madhmeshwar, Kalegaon and Nevasa in the Godavari Valley.[2] At Sangam, about 14 Km from Nevasa, a completely silicified piece of wood was found in the earlier gravel-bed.[3]

The tools from Nasik[4], Nevasa[5] and several sites in Dhulia,[6] Jalgaon and West Khandesh Districts[7] and from Chanda and Wardha Districts[8] include pebble tools as well as highly advanced pointed handaxes and cleavers which would typologically be regarded as late Acheulian. The same is true of the border area between Gujarat and Maharashtra where the surface evidence from the site in Bulsar District[9] including the Dang forest comprises genuine flat-based Sohan like pebble tools as well as cleavers and handaxes. The factory sites or workshops seem to

1. Abstracts of Papers accepted for reading at the Section of Anthropology and Archaeology, 62nd Session, *I.S.C.*, p. 10.
2. Sankalia, H.D. *From History to Prehistory at Nevasa*, p. 78; A.P. Khatri is also known to have discussed tools and animal fossils in the Godavari and its tributaries. See *I.A.R.*, *1961-62*, p. 29.
3. *I.A.R.*, *1955-56*, p. 4.
4. Sankalia H.D., *The Godavari Palaeolithic Industry*.
5. Sankalia, H.D., *From History to Prehistory at Nevasa*.
6. *I.A.R.*, *1962-63*, p. 15; *1964-65*, 1-47.
7. *Ibid.*, *1959-60*, pp. 33-34.
8. *Ibid.*, *1958-59*, p. 31, *1960-61*, p. 22, *1962-63*, p. 15.
9. *Ibid.*, *1964-65*, IV-2.

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have existed at Nasik, Nevasa, Bhadane and elsewhere. The first factory site with the dyke was discovered at Gangapur near Nasik. Tools have been recovered from two localities, Gangawadi and Jabalpur on the river Godavari.

The occurrence of a large number of tools at Nevasa seems to be due to the dykes. The site Chirki-Nevasa is about three Km downstream of Nevasa on the right bank of the Pravara. Here a small stream locally known as Chirki joins it. Here about 2050 artefacts are found. The collection has been classified into two main groups—(A) Tools made on pebbles or pebble halves and (B) Tools made on flakes. Heavier tools, including a majority of handaxes, were made on pebbles, while lighter tools including all the cleavers, scrapers, knives, chisels and some handaxes and borers were made on flakes.[1] Stone balls on quartz and dyke basalt were also found. The occurrence of hammer-stones or round balls is unusual because these had not been reported from other collections elsewhere in India except Bina in Sagar District. Outside India, these have been discovered in Northern Rhodesia, Olduvai and Tanganyika in East Africa. Pleistocene fossil wood from Chirki on Pravara was also discovered.

In the rivers of other districts also such as the Mula at Poona,[2] the Bhima at Pandharpur,[3] Sholapur District, the Tapti in the West Khandesh[4] and the Wardha in Chanda,[5] such tools have been found. During the survey of 270 Km of the Upper Krishna basin, PAPPU examined thirty sites but only one or two tools—and that two pebble tools were found.[6]

Konkan has given convincing evidence of the existence of Early Stone Age Culture. In the Korikana area of Maharashtra, the early man seems to have lived because K.R.U. TODD[7] is known to have observed a few remnants at Worli, Kandivli, Borivli, Malad, etc. At Kandivli, behind the present Physical Culture School, Borivli and Goregaon, he noticed interesting sections. This small section is described to have yielded tools representing the Lower and Upper Palaeolithic and Microlilithic industries. H.D. SANKALIA and B.B. LAL[8] observed that the different industries found by TODD in the Nullah section at the back of the Padan hill near Kandivli were not all *in situ*, and the Lower Palaeolithic Industry was absent. But recently, D.B. CHITALE has discovered pebble tools, handaxes and cleavers all made on basalt at Avadha, Barumal, Mohpada, Rajuri, Sidumbar on the river Man and Veraval on the river Tan and at Selvasa on the river Damanganga.[9] That SALI and CHITALE's discoveries in Goa around Bulsar were not chance discoveries has been proved by the discoveries of tools belonging to the Early Stone Age and later period from some stratified deposits.[10]

1. *SPPIP*, p. 85.
2. *I.A.R., 1957-58*, p. 67.
3. *Ibid., 1956-57*, p. 78.
4. *Ibid., 1958-59*, p. 24.
5. *Ibid., 1960-61*, p. 22.
6. *Ibid., 1964-65*, 1-16.
7. *JRAI*, CXIX, pp. 257-72.
8. *I.A.R., 1957-58*.
9. *Ibid., 1964-65*.
10. *SPPIP*, p. 89.

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ANDHRA

Scholars like CAMMIADE, BURKITT,[1] ISAAC,[2] SOUNDARA RAJAN[3] and H.N. SINGH carried out exploration of Bhavanasi and other rivers, and discovered several early Palaeolithic sites. Among them, Kurnool, Giddalur, Karempudi and Nagarjunakonda are very important. Most of the tool collections are from the surface but some of them are from the stratified deposits. The handaxe industry remained dominant in this region but a few pebble tools have also been discovered.

The tools found in the District of Kurnool provided a fairly good sequence of Stone Age and climatic fluctuation. The evidence for the Stone Age here is provided by the Bhavanasi and other rivers. In the lowest or earliest gravel, one finds a typologically highly advanced tool like an Acheulian handaxe with a pebble butt.

The tools from Giddalur are classified into fourteen groups as follows :— (1) Pebble tools, (2) Rostrocarinates, (3) Victoria West, (4) Abbevillio-Acheulian handaxes, (5) Acheulian handaxes, (6) Ovoids, (7) Cleavers, (8) Clactonian flakes, (9) Scrapers on Clactonian flakes, (10) Proto-Levallois flakes, (11) Levallois flakes, (12) Cores and core scrapers, (13) Bladish flakes and (14) Coarse burinate tools. The pebble tools found here cannot be regarded as Sohanian or suggesting Sohan's influence but they seem to have formed either the substratum or the invariable concomitant of the handaxe industry. The handaxes are indeed fine and of varied shape whereas some of the cleavers on the single or double technique provide, as SOUNDARA RAJAN says, text-book illustrations. These as well as the Proto-rostrocarinates recall similar tools from South Africa, Rhodesia, etc.

At Nagarjunakonda[4] in the Krishna Valley, District Guntur, tools have been discovered from six localities, and at Karempudi from five localities. SOUNDARA RAJAN has tried to determine the chronology of these localities. Some are of the earlier period while others are later. As there is no undisputed exclusive stratigraphical evidence of the tools in these localities, it is not reasonable to place them in the chronological order. H.D. SANKALIA himself thinks that these different tool assemblages do not show any chronological development but are likely to be contemporary, then differences might be due to the availability of raw material. SOUNDARA RAJAN himself says that, "The Palaeolithic folk need not have been tied down to one single trend only, but could have experimented with many techniques simultaneously for the fabrication of tools, particularly in the incipient stages of tool-making".

At Nagarjunakonda and Karempudi, different series of industries—pebble tools, handaxes, Levallois cores and flakes, blades, microliths and polished axes—covering the long period from Lower Palaeolithic to the Neolithic were discovered.

1. *Antiquity*, Vol. IV, 1930, pp. 327-49.
2. *Stone Age Cultures of Kurnool*, Ph. D. Thesis of the Poona University submitted in 1960; See also *I.A.R., 1964-65*, p. 1-6.
3. Stone Age Industries near Giddalur, *AI*, No. 8, pp. 62-92.
4. "Studies in the Stone Age of Nagarjunakonda and its Neighbourhood", *AI*, No. 14 (1958), pp. 49-113.

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These industries indicate almost continuous occupation by man from the Middle Pleistocene times. There is a possibility of the pebble tools being earlier than the handaxes. The folk making pebble tools lived on the banks of rivers whereas the handaxe folk with their improved tools ventured to move into the forested parts of the valley. There is no evidence of any chronological evolution from a pebble tool culture to the advanced handaxe culture. Besides, these pebble tools do not show any Sohan influence but are an invariable component, wherever handaxes are made on pebbles.

S.N. RAO[1] has surveyed intensively the Nalgonda District, situated immediately to the north—north-west of Guntur District. The river Krishna divides the line between the two districts. The tools from the lower ground as well as those collected from the river-bed and surface are divisible into two groups ; tools showing (i) Cruder—Abbevellian technique; and (ii) Finer—Acheulian technique.

The different tool industries have been located at the sites Chintalapalaiyam, Jangalapalli and Pangaru in Taluk Kalahasti and at Battalavallam in Taluk Satyavedu of Chitor District.[2] This area appears to have been inhabited by man right from the Early Stone Age through the Middle Palaeolithic upto the Mesolithic. Here a blade and burin industry occurs in an unmixed form quite separately. The Early Stone Age tools were collected mostly from the loose gravels lying in the bed of the river, but a few were found *in situ* in the basal pebble gravel. On techno-typological grounds, these tools are divided into three groups, though there is no stratigraphical evidence for this grouping. Choppers, that is pebble tools, are confined to Group A and B while the biface dominates all the Groups. In Groups A and B, the block-on-block and stone hammer techniques figure most prominently, while in Group C, it is the cylinder hammer technique. Moreover, these tools are smaller, lighter and extremely symmetrical.[3]

KARNATKA (MYSORE)

The Krishna with its tributaries, the Malaprabha and Ghataprabha, is the most important river for the study of Early Palaeolithic Culture. R.B. FOOTE had discovered palaeoliths at some sites in the Shimoga District, viz. Kadur, Nyamti, Nidaghatta and Lingadahalli. R.V. JOSHI[4] has surveyed the entire three hundred Km. surface of the river and noted some twenty-one sites. M. SHESHADRI[5] has described a palaeolithic industry from Kibbanahalli. The raw material of this industry consists primarily of varieties of quartzite. All the tools seem to be from surface or from an earth deposit. A palaeolithic site in the Malaprabha river-bed was discovered by M.N. DESHPANDE near Nandikeswar in Bijapur District. R.S. PAPPU explored the velleys of the Krishna river and some parts of the Ghataprabha river, a tributary of the former in Taluk Athani in District Belgaum and Talukas Bagalkot, Bagewadi, Bilgi and Jamakhandi in District Bijapur.

1. *SPPIP*, p. 61; *Stone Age Cultures of Nalgonda*, Ph.D. Thesis of the Poona University, 1966.
2. *I.A.R., 1967-68*, p. 1
3. *SPPIP*, p. 63.
4. *Pleistocene Studies in the Malaprabha Basin*, (Poona and Dharwar), 1955.
5. "The Palaeolithic Industry of Kibbanahalli, Mysore State", *Artibus Asiae*, Vol. XVIII, (1955), pp. 271-87.

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Anagwadi and Bagalkot on the Ghataprabha have turned out to be rich sites, whereas stray finds have been reported from Herkal, Kolhar, Almatti on the Krishna and Sivanandi, Nandikeshvara, Pattadakal and Shivayogamandir near Badami.[1] This place Anagwadi was further intensively surveyed by PAPPU.[2] This area attracted the Stone Age men because there was abundant raw material in the form of chert and quartz for the manufacture of tools and there is perennial water supply. The majority of the tools are handaxes while the remaining are choppers (scrapers), cleavers and discoids. Except cleavers which are all made on flakes, the remaining three tool types are made on pebbles. However, the workmanship is on the whole fine, and can best be described as Acheulian. There is a small group of handaxes which give unmistakable evidence of hafting as in Lalitpur, Madhya Pradesh.

Stratigraphically, the most important sites are Hire Mulangi, Alur (Talakvad) and Taminhal in a nala on the left bank, three Km from Alur. Another such site is Hampasagar where the stratigraphy has been determined. The main tools are handaxes, scrapers, cleavers, discoids, cores and flakes. This industry, in short, is Acheulian, though Abbevillian tools occur. A complete section at Taminhal consists of Black soil, Fine Gravel, Fine sand and Gravel, Buff or brown sand, Gravel Conglomerate, Mottled clay and Rock.[3]

At Nittur[2] in District Bellary, thirty-one pebble tools made of dyke-basalt were found in association with the remains of *Bos*. Of these elevan are unifacial and thirteen are bifacial. The unifacial choppers show four types of working edges—(1) Pointed, (2) Straight, (3) Convex and (4) Concave. In the bifacial group, there are: (1) edge around the periphery, (2) cleaver-like edge and (3) convex edge. The fossils include the remains of vertebrae, skull and horns of *Bos namadicus*.

Recently a stratified Acheulian site was discovered at a place called Gulbal in the south-western part of the Gulbarga District.[5] About one hundred artifacts were found *in situ* in the deposit. This site is unique as most of the artifacts are on silicified limestone. A few artifacts are on chert. The collection comprises fine Acheulian handaxes, cleavers, thick points and flake scrapers. The occurrence of chopping tools is but rare. As a whole, the industry may be described as developed Acheulian. About one kilometre upstream of this locality, a factory site was discovered. Here a small number of handaxes and cleavers were found.

MADRAS (TAMIL NADU)

The first Stone Age implement was discovered by FOOTE in 1863 at Pallavaram in Madras, and after this the Handaxe industry was named Madras

1. *I.A.R., 1955-56*, p. 5.
2. *Pleistocene Studies in the Upper Krishna Basin*, Ph.D. Thesis, Poona, 1966.
3. *SPPIP*, p. 70.
4. *I.A.R., 1963-64*, p. 1-42; Ansari, Z.D., : Pebble Tools from Nittur, *Indian Antiquary*, Third Series, 1970, pp. 1-7.
5. *SPPIP*, p. 74.

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type of tools after the place. Afterwards, T.T. PATERSON[1] and KRISHNASWAMY[2] carried out their investigations in Chingleput District, and they two together observed a system of four terraces in the Korttalaiyar Valley. These early stone implements have been discovered from different sites. One of the most important characteristics in the industry of this region is the presence of the cores. The majority of them are small in size, less than 8 cm. They are chipped symmetrically on both the faces. The Levalloisian element in Madras industry seems to have been a regional specialisation in the great peninsular handaxe-cleaver tradition of India.

T.T. PATERSON has divided the tools found in the boulder conglomerate at Vadamdurai near Madras in three district groups. Tools recovered from the boulder conglomerate belong to the earliest group *i.e.*, Group I. These again are divided into Early Series and Late Series. The Early Series have handaxes of Abbevillian type and cores flaked by stone technique (block-on-block). The late series have handaxes of early Acheulian type. The faceted platform flakes occur in this series of Vadamadurai. The second and third groups of tools come from the top of the boulder conglomerate. The mid-Acheulian type of tools is concerned with the second group, and late-Acheulian type of tools with the third group.

At Attirampakkam,[3] along with early froms of handaxes which are generally rolled, very late Acheulian types of handaxes—thin, flat, elongated and made on flakes are found. Some of these even recall Micoquian of France. In addition to these handaxes, there are cleavers of all types, some exhibiting Vaal technique and cores and flakes after the Sohan technique. The top of the loam yields Levallois-like flakes with faceted platform and much primary flaking on the upper surface.

At Sriperumbudur,[4] known to yield plant fossil remains, a few implements of the Early Stone Age were collected, besides a large number of worked flakes, found strewn over this area. The implement included a broken, but well-shaped, handaxe of the mid-Acheulian type, a U-shaphed cleaver with a concave-like working edge, a discoid and a core.

Tools have been found by CAMMIADE from the detrital laterite of Manajanakaranai. BURKITT calls them as late-Acheulian, and puts them at the end of his series I and the beginning of Series II.[5] Under the detrital laterite, "the main laterite" yields the tools of the Abbevillio-Acheulian type, earlier than the late-Acheudian. Besides Chingleput District, Madras Museum abounds in collections from other Districts namely Chuddapah, Nellore, Anantpur and Kurnool. .

Among the several newly discovered Early Stone Age sites, the important are Kilvenpakkam and Tirmalpar in Arkonam Taluka, District North Arcot. While surveying the east coast from Madras to Nellore, K.D. BANERJEE has found tools of the Early Palaeolithic.[6]

1. *Studies on the Ice Age in India and the Associated Human Cultures*, pp. 327-33.
2. 'Prehistoric Man Around Madras' published in *Indian Academy of Sciences*, Madras, 1938.
3. *SPPIP*, p. 67.
4. *I.A.R., 1961-62*, p. 25.
5. Cammiade and Burkitt, *Antiquity*, 1930, pp. 327-39.
6. *SPPIP*, p. 69.

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Controversy Among Scholars about Sohan Culture

There is a controversy among scholars about Sohan Culture. Some scholars consider it to be a part and parcel of the handaxe culture, while others consider it to be independent. It is a part of the Handaxe culture on the following grounds.

(1) According to SOUNDARA RAJAN,[1] a culture should be the sum total of more than one industry, or a group of techniques set in an evolving, socio-material matrix. The Sohan culture, on this account, would seem to fall short of this defination, and would at best seem to be an industry displaying the rise, perfection, and degeneration of the 'prepared platform technique'.

(2) It is regional and individualistic, and has lost its contact with the rest of India, and at a later stage, it mixed with the prehistoric culture. On the other hand, the handaxe culture displays fullness of evolution and diffusion.

(3) Both handaxe and Sohan type tools have been found in the same terrace in Chauntra and thus they were contemporary in the same valley, but they never occur together. It is difficult to imagine the two sets of people practising two different traditions in a restricted area. Further the discovery of crude handaxe and the massive flake at the same locality of Pahalgam in Kashmir, and in practically the same part of it, but in two different deposits removed by about eight feet of boulder conglomerate seems to be the product of some people over the course of time even much earlier but they do not represent two separate and distinct cultures of handaxe and Sohan.

(4) In most of the Early Stone Age regions of India, handaxes cleavers appear together with those on pebbles and pebble flakes. These Sohan pebble tools have been found even from the heart of the handaxe-cleaver culture viz. from the Districts of Kurnool and Cuddapah in Andhra Pradesh. These pebble tools do not show any Sohan influence but are an invariable component, wherever handaxes are made on pebbles.

Other scholars[2] regard Sohan culture as a separate culture and advance the following arguments in support of it. KRISHNASWAMI[3] assumes the meeting ground of the Sohan and the Madras industries in Gujarat and South-east Rajasthan. (1) The Sohan culture contains more than one industry and group of techniques. In the early phase, it remained confined to the Beas nnd Banganga. In the middle phase, it flourished in the Sirsa valley, and in the most developed phase, it is found at Ror. These are three techniques, namely pebble, Clactonian and Levallois.

(2) There are two technological traditions of two different cultures. Sohan tools made on pebbles were used for cutting and scraping, while the Madras handaxes prepared on cores, were meant for digging.

(3) A dozen sites of the Sohan culture have been explored on the Beas, Banganga, Sutlej, etc. A recent survey of the Sutlej near the town of Bilaspur brought to light a sequence of three implementiferous terraces. No handaxe or

1. *IP*, p. 1.
2. Mohapttra, P.C. Pant and S.P. Gupta regard Sohan as a separate culture, See their views, *IP, 1964*, pp. 1-13.
3. *AI*, No. 3, p. 19.

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cleaver was found in it. This implied the acceptance of the Sohan as a separate culture of the chopper-chopping tool complex which probably originated in the Sutlej basin, and remained confined to that area for a very long time.[1]

(4) The Sohan Culture was not confined to the Punjab only but it spread outside, because pebble tools are found in different parts of the country such as Chitorgarh in Rajasthan, Chambal Valley in Madhya Pradesh, Sabarmati in Gujarat and at Nagarjunakonda, Karempudi and Kurnool in the South.

Chronologically and stratigraphically, it is difficult to believe that pebble tools found outside Punjab are due to the influence of Sohan Culture. Outside Punjab, the pebble industry had become extinct by the second stage with the coming into its own of the bifacial tradition, but the Sohan tools of the Punjab passed through different stages of development—Early Sohan, Late Sohan and the Evolved Sohan. Besides the Sohan tools of the Punjab are characterised by the Levallois flake technique which is absent in the pebble tools found in other parts of the country. These pebble tools do not show any Sohan influence, but are an invariable component, wherever handaxes are made on pebbles.

G.C. MOHAPATRA[2] thinks that the status of the Sohanian as an independent culture and the place of these artifacts within the time and space of this culture are the two main problems. It has been shown by him that Sohan is an independent culture during the span of which at a very late stage (III Interglacial) a streak of an advanced Acheulian industry ran through it mostly in the western region apparently leaving no indelible impression on the general pattern of the lithic complex of the region.

It is more reasonable to say that the palaeolithic folk need not have been tied down to one single trend only but could have experimented with many techniques simultaneously for the fabrication of tools, particularly in the incipient and early stages of tool making. The reason is that we find different types of tools in the same locality. It is not necessary that they represent different persons.

A.K. GHOSH[3] has suggested that the pre-Sohan people were a branch of *Homo-erectus* who after their entry into the northern part of India made a rapid proliferation and slowly distributed in the Peninsular part of India. The cultural differences between the Peninsular and extra-Peninsular parts are mainly due to basic change of ecology. This possibly gave rise to two different traditions, chopper tradition and biface tradition, in two ecological divisions of India. The palaeo-environmental conditions during the Pleistocene period in the Peninsular part of India are more or less similar for which the pebble-core element does not show marked differences. In spite of this fact, the mechanisms of adaptation to local environmental conditions and exploration of local resources were the key factors responsible for regional variations.

1. *IP*, p. 11.
2. Abstracts of Papers accepted for reading at the Section of Anthropology and Archaeology, 62nd Session, *ISC*, p. 10.
3. 62nd Session, *ISC*, Presidential Address at the Section of Anthropology and Archaeology by A.K. Ghosh, 'Man Evolving in India', p. 17.

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GENERAL CHARACTERISTICS

Except Kerala and Sind, the whole of India has given evidence of the Early Stone Age Culture which has been discussed above. Because of geographical and physical features, each region has its own peculiarity. Besides, there are also certain general characteristics.

Idea of Sites

The discovery of large number of tools at different places gives an idea of the Early Palaeolithic sites throughout India except Kerala and Sind. It is presumed that the population in Early Stone Age lived in pockets at the sites such as Chitor and Nagari in South-eastern Rajasthan; Sabarmati Valley in Gujarat; Singrauli basin in Mirzapur District of Uttar Pradesh; Sinhbhum District in South Bihar; Sisunia hill in District Bankura, West Bengal; Kamarpal and Kuliana in Orissa; Narsimhapur and Hoshangabad of the Narmada Valley in Madhya Pradesh; Nasik and Nevasa, Districts Nasik and Ahmednagar respectively, both in Maharashtra; Kurnool, Giddalur, Karempudi and Nagarjunakonda in Andhra Pradesh; Anagwadi and Nittur in Karnataka; and Chingleput District in the Korttalaiyar Valley of Tamil Nadu. The earliest Lower Palaeolithic sites of habitation for men were found in Punjab and Kashmir, but in course of time, they migrated to the south-east India. Here the great number of sites and richness implies that the palaeolithic population became probably much denser than in the West or North.

Nature of Sites Where Lower Palaeolithic People Lived

The distribution of tools gives an idea of the nature of the sites where these Lower Palaeolithic people lived. They lived along the banks of the rivers because some tools have been discovered from the terraces of the rivers and while other from the surface. They preferred the sites near the rivers because water was easily available and also the raw material in the form of river pebbles for the preparation of tools. The foothills near the sea for instance near Madras or Bombay were selected. Choice seems to have been given for areas where raw material was easily available, as at Nasik where there is dyke of fine-grained basalt; at Lalitpur where huge granite boulders might have afforded shelter as well as raw material for tools and water could be had from the stream. They seem to have selected some sites at the foot of low hills or on the open plateau plains as noticed in Malwa. They might have settled on the edge of the forests where they could live by hunting. They avoided higher altitudes and heavily forested areas because vegetables, animals and raw material for making tools were scarce at these places, and were not easily available. Water was also of prime necessity.

Tools and Functions

It is somehow difficult to know the exact use of the different types of Lower Palaeolithic tools in such a dim past far removed from the present. Foreign as well as Indian scholars after considering the environments of that time made tentative attempts to determine their use. T. T. PATERSON inferred that Sohan pebble tools might

1. T.T. Paterson and H.J.H. Drummond, *Soan the Palaeolithic of Pakistan*, p. 114.

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have been used for cutting-slicing, gouging-chiselling, piercing-boring, pounding and smashing, rasping, skinning-flensing and scraping-stripping. In short. the Sohan people were simple food gatherers and not war-like. The handaxe-cleaver man was a hunter who chased big game and who fought and defended himself against enemies of all types.

F. E. ZEUNER[1] thought that the handaxe was an excellent tool for digging up roots, grubs, and other food from the ground (though it can be useful for many other purposes as well, for instance, for making notches in trees to facilitate climbing). Hence the handaxe (or the Abbevillio-Acheulian) culture was of vegetable and grub gatherers. DESMOND CLARK[2] has, however, suggested that these were used as meat mattocks, hence the edges of these tools are rarely found blunted. Likewise F. E. ZEUNER associated the makers of the large Clactonian flakes and hollow scrapers with forests, and the Levalloisian and the Mousterians, who made beautiful flakes in a specialized manner, as typical hunters. Such flakes would be extremely suitable for cutting and dressing carcasses.

MACBURNEY,[3] after studying the distribution of handaxes and flakes in Western Europe, has postulated that the handaxe makers preferred the low, maritime, and warm regions, whereas the flake fabricators—the Levallosian, for instance, liked the upland which was comparatively colder.

According to H. D. SANKALIA,[4] the handaxe with varied sub-types was truly an all purpose tool. The pointed heavy-butted one could have been used as a digging tool, whereas the flat triangular with sharp edge around could have served as a lance-head. Some of them with notches in the lateral sides might have been hafted to a bone or wood handle. The finer elongated ovates might have been thrown as bolts. The cleaver with its four types of edges and butts must have had a use similar to axe for cutting and chopping. The pebble tools might have been used for other purposes as suggested above by other scholars.

Fauna and Flora

The Siwaliks of the Punjab and some rivers of India give an idea of the contemporary fauna and flora of the Early Palaeolithic people. The Lower and Middle Siwaliks yielded fossils of mammals including those of the anthropoids (apes). The fauna and flora of that time have been discovered in the terraces of the rivers. It seems that the number of *Bos* and *Elephas* was larger in comparison with other animals in Peninsular India because mostly their fossils are found. The region particularly between Narsimhapur and Hoshangabad has yielded the largest number of animals fossils of this period such as wild elephant (*Elephas namadicus* Falc.), wild horse (*Equus namadicus* Falc.), wild ox (*Bos namadicus* Fal.), *Hippopotamus Palaeindicus* F. and C., *Stegodon insignis* F. and C., *Rhinoceros unicornis* Linn., *Sus* sp., *Trioxyx* sp. *Stegodon ganesa* F. and C., *Emys* sp., *Urus namadicus* F. and C., *Leptobos Frazeri* Rut, *Cervus duvauceli*.[5]

1. *Dating the past*, p. 292.
2. *Current Anthropology*, 1960, p. 315.
3. *The Stone Age of Northern Africa*, p. 24.
4. *SPPIP*, p. 137.
5. *Studies in Prehistory, Robert Bruce Foote Memorial Volume*, pp. 100-101.

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Besides fossils of animals like the *Bos namadicus*, *Elephas antiquus* and *Rhinoceros* have been found at some sites such as Nandur, Madhmeshwar, Kalegon and Nevasa in the Godavari Valley.[1] *Elephas* has again been found at Chandoli and at Kalamb on the Ghod river, District Poona.[2] *Bos* and other animal remains have been reported from Amraoti, Chanda and Wardha Districts.[3] The remains of *Bos* along with pebble tools were discovered at Nittur, near Tekkalkota, District Bellary, in Karnataka.[4]

At Saugam about 14 km. from Nevasa, a completely silicified piece of wood was found.[5] CORVINUS reports the discovery of fossil wood pieces at Chirki-Nevasa. Near Inamgaon, District Poona was located a fossil soil. This has yielded grains of *chiltbil*. A huge carbonized trunk in the dam-cutting was found at Mulanagar, near Rahuri. It was identified as *Terminalia Arjuna*.

Ecology

It is indeed difficult to say anything definite about the past ecology from the study of the present one unless there is polynological data. European scholars have tried to work on these lines in Europe and Africa for knowing ecology during this early period. The same ecology of Europe and Africa cannot be postulated in India as done by some foreign scholars. The climate in the Punjab and Kashmir was decidedly colder than in the peninsular India during the Interglacial periods and must have been extremely cold during the Glacial period, There were four quite distinct Glacial periods, each seperated from the next by a mild or warm Interglacical period. So alternating with four Glacial, there were three Interglacial periods. Everyman made great progress during these Interglacial periods. The climatic changes in Punjab and Kashmir during the Ice Age naturally had a great effect on the men, animals and plants of the time. Men and animals seem to have migrated towards South with alternating phases of heat and cold.

Perhaps corresponding to these cold and warm phases in Kashmir and Punjab there were wet and dry phases in the remaining sub-continent of India. These two regions with different climates must have given birth to different animals and plants. During the change of climate, sometimes barriers on land and on the seas prevented the migration of animals and men. Those, who were unable to adapt themselves to the changed climate, died out. Others went through process of evolution and developed into new species better equipped to survive in the struggle of existence.

Habits of the People

The geographical, climatic and ecological factors are helpful to draw inferences about the habits of the people. Man during the Early Palaeolithic Age made and used only crude stone tools, and was only a food gatherer. Hunting and food gathering were the main occupations. They lived naked out in the open like other animals

1. *From History to Pre-history at Nevasa*, p. 78.
2. *SPPIP*, p. 142.
3. *IA.R., 1960-62*, p. 63.
4. *Ibid., 1964-64*, pp. 1-42 (Cyclostyled copy).
5. *Ibid., 1955-56*, p. 4.
6. *SPPIP*, p. 142.

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and ate mostly berries, nuts, roots, insects, worms, and flesh of animals. Gradually, he started to make tools for different tasks. With these implements, he also used to save himself from big animals. He inhabited those places where there are facilities of raw meterial for preparing tools, water and food.

Time and Duratian

The early Sohan Culture of Punjab belongs to II Interglacial Period, and is dated Middle Pleistocene Age. It is possible that a few massive flakes found in Punjab and Kashmir might have originated in the Lower Pleistocene probably during the I Interglacial times. There is no such geological and climatic evidence for dating the handaxe-cleaver—and pebble tool cultures in the remaining Indian sub-Continent. Once it was claimed that since the handaxes are found in the original laterite and in the boulder conglomerate and the tools are patinated, the industry was old and belonged to the Early Middle Pleistocene. This view has now proved to be wrong. Nowhere these tools have been found in the laterite but in detrital laterite. They are both primitive as well as advanced handaxes and cleavers though they might be patinated. This assemblage of the tools may be divided into Early and Late groups according to the state of preservation. Nowhere there is clear undisputed stratgraphical evidence to support the typological development of advanced Acheulian handaxe-cleaver industry along with the Abbevillian and ordinary pebble tools.

At one time, DE TERRA[1] equated this II Interglacial Terrace with the Narmada Lower Group, and so also did F.E. ZEUNER.[2] It seems to be a wrong approach to establish such distant correlations particularly when the Narmada Lower Group is not independently dated. WAINWRIGHT[3] has tried to place the tools of Lower Narmada Group to the Last Interglacial, hence, these tools will belong to the Upper Pleistocene Age. This approximately would be the period for highly advanced handaxe-cleaver industry from Gujarat, Saurashtra, Eeastern Rajasthan, Madhya Pradesh (particularly Lalitpur), south Uttar Pradesh, Bihar, Orissa, West Bengal, Andhra and Karnataka. The absolute date for this very late phase of the Acheulian might be aronud 50,000 B.C. A C-14 date for the Acheulian Culture at Kalambo Falls in Africa is 55,300 $\pm$ 300 B.C.[4] Thus the time and duration of the Early Palaeolithic Age in India may be placed between Lower Pleistocene and Upper Pleistocene

Comparison with the Cultures of the Countries Outside India

The Indian handaxe-cleaver complex is similar to that in Africa. The basic similarity between Indian and South African Handaxe industry is that flake and core element is intimately associated together from the beginning, but afterwards in the Vaal River (S. Africa), there is a trend towards the development of Levallois

1. *Studies on the Ice Age in India and Associated Human Cultures*, p. 302.
2. *The Stone Age and Pleistocene Chronology in Gujarat*, p. 44.
3. *The Pleistocene Deposits of the Lower Narmada*, pp. 44.
4. *SPPIP*, p. 139.

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technique. In India, we do not find any such development. The typological comparison between the two in shape and size continued afterwards.

The sequence exposed at Olduvai Gorge (East Africa) is very important, because we see the stages of evolution of the handaxe from the pebble stage to the highly evolved Acheulian stage. The tools found at the lowest level belong to the pebble (Oldowan) culture, and then Chelles-Acheul development is noticed. It passed through eleven stages. No such evolution in the Handaxe industry of India is noticeable. The specimens from the stage six to the stage eleven are most common. Pebble tools are also secured from the South, but they seem to be a part and parcel of the handaxe industry. A.P. KHATRI claims to have discovered some artefacts of the Oldowan culture below an Abbevilio-Acheulian at Mahadeo-Piparia near Narsingpur, but actually it is not Oldowan horizon. The African pebble industries like the Kafuan and, partly the Oldowan rest mainly on the Lower Pleistocene horizon while the pebble tools seem to belong to the Mid-Pleistocene.

The earliest tools found in Uganda are termed as Kafuan Pebble culture. There is no question of comparison with the early palaeolithic tools are concerned. It is only in 'M' and 'N' horizon Acheulian tools that we see the closest resemblance. The Acheulian implements illustrated by O'Brien have their exact counterparts in the Indian Lower Palaeolithic industry. It may also be compared with the Upper Acheulian on the Kharga basin, one of the largest of the five principal Egyptian oases. The raw material used in the Kharga Upper Acheulian is chert while in India it is mostly quartzite. Along with the Acheulian handaxes, Abbevillian types also occur, as they do in India. In India, one thing is remarkable, that, with the advanced Acheulian, the whole development stops, while in Kharga, it continues evolving into Levallois and other industries.

Eastern Countries of Asia as well as Europe

MOVIUS has tried to show that the Sohan culture is allied to the pebble tool industries of South-east Asia viz. The Anyathian of Burma, the Choukoutienian of China and the Patijitanian of Java. Here are found unifacial and bifacial pebble artefacts, handaxe and proto-handaxe types. Originally these people worked on pebbles but gradually took to manufacturing flakes. Whether it was a natural, indigenous development, or due to new influences or arrival of some different man. The Sohan despite its limited similarity in the pebble tool types of South-East Asia is different. Pebble tools plus Levallois flake tools are found in Sohan tools. This Levallois influence reached the Sohan Valley from the immediately north-west tract in the Soviet Central Asia, northern Afghanistan and Iran where recent work has bought out many interesting phases of the Old Stone Age.

The early stone implements may be compared well with the Acheulian type of West Europe, although the material differs. There is a marked difference between the handaxe-*cum*- cleaver tradition of India and that of Europe. In the former, the flake and core types are integrally associated, while in the latter, their developments ran parallel to each other.

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ORIGIN OF EARLY STONE AGE CULTURE IN INDIA

Nothing positively can be said about the origin of the Early Stone Age Culture in India as no skeletal remains of Man have so far been found. The earliest tools both of Sohan and Handaxe culture occurred in the Punjab. If the tools signify anything, looking at their similarity with those from Java, Burma and China, it may be suggested that they belonged to the *Sinanthropus* or *Pithecanthropus* group. But in comparison to the tools, it appears that they have greater affinity with those from East and South Africa. The Early man in India was related physically and culturally to the Early African Man. In Africa, early tool makers were '*Zinjanthropus*' and 'pre-Zinjman'.

A question arises how influence or man reached the Punjab and Kashmir from Africa. Some geologists hold that Saurashtra was connected with Africa, but this connection was probably during the pre-Pleistocene times. Whether it continued to survive later, is not known. From the Pleistocene times, it is an island. The only land route is *via* Arabia—Iran—Baluchistan and Afghanistan. But then no pebble tools or handaxes have been found in Arabia so far. Could not such unspecialised tools have been made independently in different countries? Not one but diverse centres of origin are most likely.[1]

1. *SPPIP*, p. 141.

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CHAPTER V

MIDDLE PALAEOLITHIC CULTURE
(*C.*50,000—20,000 B.C.)

The first clue to the existence of the Middle Stone Age Culture by stratigraphy and tool typology was obtained at Nevasa. Before this, it was not recognized, and was known by different names. At Narsinghpur and Hoshangabad, DE TERRA and PATERSON discovered it in the basal gravels of the black soil of Narmada and designated it as the "Black-Soil Industry" or "Proto-neolithic".[1] It was also called "Proto-Microlithic"[2] and "Epipalaeolithic".[3] In order to avoid terminological confusion, the term Series II was accepted. As definite proof of independent existence was obtained from Nevasa, it was called Nevasian after the site Nevasa. From both the chronological and typo-technological significance, it is now finally known as "Middle Palaeolithic".

PECULIAR CHARACTERISTICS

Taking the technique, typology, raw material and stratigraphy into consideration, this culture is different from the preceding and the succeeding ones. The tools of this culture are of flake nature, and they are smaller than those of the Early Palaeolithic Culture. They are of different types such as scrapers, borers or awls, points, small choppers, small handaxes, very rarely small cleavers and burins or burin-facet tools. Scrapers were meant for dressing skins and barks of trees and knives for cutting and chopping, and pointed tools for piercing wood and bone. The tools of Early Palaeolithic were generally made of quartzite but the tools of this culture are made of new material such as agate, chert, jasper and chalcedony. At a few sites such as Nevasa on the Pravara, Nandur, Madhmeshwar on the Godavari, Maheshwar on the Narmada, and Tandrapadu, opposite Kurnool, the tools can be correlated to Terrace 2. It succeeds the Handaxe industry and precedes the Blade and-Burin industry in Kurnool and Chitoor in Andhra and Bombay area, and probably in U.P., Orissa, Madhya Pradesh, Maharashtra and Karnataka.

1. *Studies on the Ice Age in India and Associated Human Cultures*, p. 320.
2. *South Western Journal of Anthropology*, University of Mexico, IX. No. 4.
3. *Journal of Palaeontological Society of India* Lucknow, Vol. II.

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DISTRIBUTION

Maharashtra

This Middle Palaeolithic Culture seems to have flourished in the whole of of Maharashtra. In Ahmednagar District, the most important stratified sites are Nevasa on the Pravara, and Bel Pandhari, Suregaon, Kalegaon, Nandur and Madhmeshwar on the Godavari. In Poona District, the richest site is Koregaon. Since then Chandoli, Shikrapur on the river Vel and numerous sites have been discovered.[1] Among the stratified sites in Khandesh, the most important is Ranka-nala, a tributary of the Tapti river.[2] The adjoining Districts of Dhulia and Jalgaon are also rich and notable.[3] In Vidarbha, numerous sites have been discovered on the banks of the rivers.[4] The Bombay area as well as Bulsar yielded tools.[5] There is no exact mention of tools found by TODD[6] at Borivli and Kandivli but these sites must have yielded plenty of tools,[7] because probably there are a large number of outcrop of chert, jasper and fine glassy basalt in the higher reaches.

Karnataka

This Middle Palaeolithic Culture was in existence in Karnataka excluding the coastal areas. The two important stratified sites known are Taminhal and Alamatti. The earlier collection from Bagalkot and other sites was important, but it was mostly unstratified and unrelated. Very interesting tools have been reported from Salvadgi, etc., in Bijapur District.[8] K.D. BANERJEE[9] notes that the Karnataka Middle Palaeolithic industry is characterized by a high percentage of irregular flakes, cores and high nodules; the main tool types being points having various subtypes and some showing incipient or ill-developed tang, scrapers borers, borers-*cum*-scrapers, flakes and cores. R.S. PAPPU[10] carried on much intensive research work at Kovalli and Anagwadi. In the Anagwadi area, tools on quartzite were also made, and these are much less rolled than those on chert. Numerous sites of this culture have been recovered from the Shorapur *Doab*, lying in the southwestern part of the Gulbarga District.[11] They include both factory sites and stratified sites. Among the stratified sites, the important is Haragundgi where fossils of *Bos*, *Elephas* and certain unidentified species of the *cervidae* family have been found *in situ* along with artfacts.[12] In the Gulbarga District, another site has been

1. *I.A.R., 1957-58*, p. 67.
2. *Ibid., 1959-60*, p. 33.
3. *Ibid., 1962-63*, p. 15, *1964-65*, pp. 1-47.
4. *Ibid.*, p. 14; *1959-60*, p. 33, *1960-61*, p. 22; *1962-63*, p. 15, *1964-65*, pp. 1-47.
5. *SPPIP*, p 156.
6. *JRAI*, 1939, pp. 261-62.
7. *SPPIP*, p. 159.
8. *I.A.R , 1960-61*, p. 64.
9. *Middle Palaeolithic Industries of the Deccan* Ph.D. Thesis. Poona University.
10. *Pleistocene Studies in the Upper Krishna Basin*, Ph.D., Thesis, Poona University, 1966.
11. Paddayya, K., *Pre and Protohistoric Investigations in Shorapur Doab*, Ph.D., Thesis, Poona University, 1968, pp. 23-67.
12. Paddayya, K., Hagargundi', A Fossiliferous Middle Stone Age site on the Bhima River, *Journal of the Asiatic Society of Bengal*, Vol. II (1971), pp. 12-14.

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discovered at Jawali.[1] Lithic industries of this culture were also found at Sanganakallu, Bellary.[2]

Andhra

In Kurnool, CAMMIADE and BURKITT had already classified the tools of their collection into Series I, II and III. Both Series II and III comprise tools which would be elsewhere called "Middle Stone Age". The collection includes all the main types which characterize the Nevasian, including the tanged variety of points, borers and scrapers. Another interesting feature is the size. On the whole, the tools are larger than those from many sites in Maharashtra. S.N. RAO's work in Nalgonda gives a good idea of the Middle Palaeolithic Culture in this District.[3] One of the richest site is Ramatirthampaya 8 Km. north of Yeleswaram on the Krishna while a stratified site is located at Raigirvagu. Some ten sites yielded about 600 tools. The Nalgonda Middle Palaeolithic industry contains scrapers of various types, points and borers as well as thick blades. Several typical Middle Palaeolithic sites have been discovered in the Karimnagar District. The development from the Middle Palaeolithic to Blade and Burin industry is available in Chittoor District.

Tamil Nadu

Middle Palaeolithic Culture also flourished in Tamil Nadu excluding perhaps the north area. Tools were recovered from Attirampakkam and Vadamdurai. The Attirampakkam excavation[4] showed that the layer 2 from below, viz. the detrital laterite contains a post-Acheulian flake industry consisting of points, scrapers and longish flake blades. Such an industry was also found in the excavation at Gudiyam in the same District, overlain by a microlithic one.[5]

Orissa

Stratified deposits exist on the Khadkai at Bijatala and Khandalia, District Mayurbhanj, at Ramla and Jagannathpur on the Baitarni in District Keonjhar, at Jhirapani on the river Koel, at Khurhadi on the Khurhadi in the Sundargarh District, whereas at Harichandanpur in the Dhenkanal District there is a factory site as there are outcrops of quartz, jasper and quartzite.[6] It was the second fine gravel which yields Middle Palaeolithic tools. Since the flakes predominate in the collections, the industry should be called flake industry.

West Bengal and Assam

The four western Districts of Bankura, Birbhum, Midnapur and Purulia have an industry consisting of scrapers, borers and points but a few of these have

1. Nagaraja, S., Middle and Late Stone Age Industries of the Amarja Valley, Gulbarga District, *Professor K.A. Nilakanta Sastri Felicitation Volume*, Madras, Vol. I, pp. 216-223.
2. *Mesolithic and Pre-Mesolithic Industries from the Excavation at Sanganakallu*, Bellary, Poona, 1969 pp. 23-36.
3. *Stone Age Cultures of Nalgonda*, Ph.D., Unpublished Thesis, Poona University
4. *I.A.R., 1964-65*, pp. 1-37.
5. *Ibid., 1962-63*, (Cyclostyled copy), p. 12.
6. *SPPIP*, p. 178.

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also been found in the District of 24—Parganas and Jalpaiguri. Those found in the 24—Parganas are found in discontinuous sandy patches.[1] These tools were also recovered from the Garo Hills in Meghalaya of Assam.

Bihar

Middle Palaeolithic tools were collected not only from Patna, Gaya, Bhagalpur and Monghyr Districts but also from the Districts of Chota Nagpur such as Singhbhum and Palamau.[2] A.K. Ghosh[3] groups these tools under the Flake industry. Among the remaining tool types, scrapers predominate, and the points and borers occur in small numbers.

Uttar Pradesh

Stratified deposits of all the three industries along with animal fossils have been recently discovered in the Tons Valley, Banda District as well as the Belan Valley, District Allahabad. In the Belan Valley, the tools of Middle Palaeolithic character have been collected from the cemented ground II which lies above the red Kankar silt. These have not been found in the Gangetic Valley proper.

Madhya Pradesh

The different regions of the whole of Madhya Pradesh yielded Middle Palaeolithic tools. Some tools found at Narsinghpur, Hoshangabad and Maheshwar[4] have already been described. Sihora on the Dhasan, 25 Km. due west of Sagar in the same district has yielded a rich Middle Palaeolithic industry.[5] From the site of Gonchi on the Betwa, about six Km. east of Mungwal railway station, Rameshwar Singh collected 230 tools.[6] Some of these tools were found *in situ*. The tools of Sihora and Gonchi are identical and illustrate the character of the Middle Palaeolithic Culture, particularly its gradual transition from the Handaxe-cleaver Culture to Scraper-Borer Culture on flakes as well as nodules and the technological relationship of the latter to the Mesolithic Culture. In the valleys of the Sonar and Bearma, Damoh District, JOSHI has also discovered tools of the Middle Palaeolithic at some twelve sites.[7] NISAR AHMAD's exploration in Upper Son basin yielded 485 tools which come from 45 sites.[8] ALLICHIN describes some four sites Pandav Falls, Baghain River gravels, Kanhari Fields and Rehuntiya where different tool types have been found.[9]

1. *Ibid.*, p. 179.
2. *I.A.R., 1961-62*, p. 6; *1963-64*, p. 4; *1965-66*, pp, 1-11, 14-18 (Cyclostyled copy).
3. The Palaeolithic Cultures of Singhbhum, in *Transactions of the American Philosophical Society*, New Series, Vol. 60, Part I, 1970, Philadelphia.
4. *Excavations at Maheshwar and Navdatoli*, pp. 37-41.
5. *Palaeolithic Industries of Northern Bundelkhand*, Ph.D., Thesis, Poona pp. 117-50.
6. *Ibid.*, pp. 151-72.
7. *AI*, No. 17, 1961, pp. 20-33.
8. *The Stone Age Cultures of the Upper Son Valley*, Madhya Pradesh, Ph.D. Thesis,
9. "The Indian Middle Stone Age : Some New Sites in Central and Southern India and their Implications". *Bluia*, No. II, p. 15.

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Narmada Valley is rich in Middle Palaeolithic tools. Huge factory sites of this culture were discovered at Dongergon and Choli on either side of Narmada river, A.P. KHATRI[1] found the tools of this industry deposited with late Acheulian tools at Piparia. The earlier two distinct terraces at Sagunghat yielded respectively Early and Middle Stone Age tools. Between Amarkantaka and Mandla, S.G. SUPEKAR[2] also discovered twelve sites out of which five are factory sites of Middle Stone Age. Middle Palaeolithic tool have been found *in situ* as well as on the surface both at Mandsaur and Nahargarh in the Shivna Valley.[3] The number of *in situ* tools is very small. There was a workshop of these tools at Kharki Mata site.[4] The essential character of this industry was revealed by the tools found at Rau near Indore.[5]

Gujarat

In Saurashtra, stray tools, which belong typologically to the Middle Palaeolithic, have been found on the river Bhadar at Rojdi and Jetpur; Three more sites—Balitha, Amba and Tukvada in Bulsar District, Padam near Unai and Chinchinagaotha and Motacharya, in the Dangs—have been discovered.[6] Middle Palaeolithic tools occur in various streams in northern and southern Kutch. Two gravels were noticed near Ratadia village on the Khari nullah, off Matal on the left bank of the Dhrud river. The tools include flake blades, scrapers, points and cores.[7]

Rajasthan

Hitherto only Western Rajasthan, but now South east Rajasthan also yielded Middle Palaeolithic tools. These tools have been reported from the Chambal and other river valleys. Some traces of it were noticed at Chitor itself on the Bedoch.[8] The Gambhiri as well as its tributary the Wagen yielded similar evidence. But, so far the best known area is the Luni Basin.[9] Tools have also been discovered from eight sites—Samdari, Dundara Luni, Srikrishnapura, Golio, Kundgaon, Bhawi and Pichale of Luni. Western Rajasthan seems to have come under active occupation at a later stage. Though most of the tools were collected from the river beds, their horizon was the cemented sandy gravel. The implements from the Luni basin comprised handaxes, cleavers, scrapers of various types, borers, scraper-borers, points-unifacial and bificial, flake knives and flakes. Since the number of handaxes and cleavers is small, and their distribution is limited in the Luni Basin, it seems that they belong to the Eastern Rajasthan Stone Age complex rather than to the Western. These implements were made of flint, chert and jasper, which are easily available in the limestone region.

1. *I.A.R., 1959-60*, p. 22.
2. *Ibid., 1961-62*, p. 22.
3. Khatri, A.P., *Stone Age Cultures of Malwa*, Ph.D., Thesis, Poona University 1957; *I.A.R., 1959-60*.
4. *I.A.R., 1956-57*, p. 11.
5. *SPPIP*, p. 185.
6. *Ibid.*, p. 187. See also f.n. 99.
7. Ansari, Z.A. and R.S. Pappu, Stone Age in Kutch, Gujarat', *BDCRI*, Vols. 31-2, 1970-72, pp. 159-64
8. *I.A.R., 1956-57*, p. 8.
9. *Ibid., 1960-61*, p. 31.

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Kashmir and Punjab

That the Middle Palaeolithic Culture also existed in the Kashmir Valley is indicated by the discovery of two characteristic tools.[1] One, found first on the temple mound at Pahalgam, is a very large one. The second is comparatively small, and found on the scree at Ganeshpur. The Late Sohan tools recovered from the sites of East and West Punjabs may be attributed to Middle Palaeolithic Culture because among them, there are various types of scrapers.

Pakistan

From the Sanghao cave[2] near Peshawar, 30 Km. north-east of Mardan, Pakistan, A.H. DANI made stratified collections of quartz flakes and cores and a few of schist along with charred animal bones. This stone industry is called Levalloiso-Mousterian. This Sangho Flake Industry of Levalloiso-Mousterian is said to be wide spread in North Gandhara. Tools of the Levalloiso-Mousterian technique are also found in the Parkho-darro cave.[3] This industry is connected with the Levalloiso-Mousterian culture of Afghanistan and Western Asia. The Indian Middle Palaeolithic tools do not seem to be different from the Mousterian implements.

CLIMATIC CONDITION AND ENVIRONMENT

The climatic condition and environment may be inferred from the study of the nature of deposits found in the rivers. The changes in the deposits may be due to the cycle of a heavy wet phase followed by a drier phase, and then a lighter wet phase. Gradually, the climate became drier. When the rivers again raised their levels and then once again dropped them, owing to a wetter climate, the first Stone Age Man left the valleys. When the rivers rose again for the third time, and shed its load against other deposits, the Middle Stone Man occupied the region. He lived near the foothills, a region where raw material in the shape of nodules of agate, jasper and other fine-grained stones, was easily available. He made smaller tools known as scrapers for dressing the skins of animals, and used wood and bone for handles. There are also points and chisel-edged tools. These imply the invention of the bow and arrow for hunting.

FAUNA AND FLORA

From the few recorded finds of animal fossils found at Hoshangabad, Narsinghapur, Devkachar, Burmaghat Siddhesvara on Narbada in Madhya Pradesh; Nevasa on Pravara and Kalegaon on Godavari in Maharashtra; Nittur near Bellary and Hagargundgi near Gulburga in Karnataka, it might be said that some of the typically Middle Pleistocene animals such as *Bos* and *Elephas* had survived, and were the main source of animal food for man. Likewise the flora might not have changed.

1. *SPPIP*, p. 197.
2. 'Sanghao Cave Excavation' in *Ancient Pakistan*, I, Peshawar, 1964, pp. 1-50.
3. *SPPIP*, p. 196.

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DATE

Some idea about the date of the Middle Palaeolithic Culture is indicated by the fossils found in association with stone implements in the terraces of the rivers. Five C-14 dates obtained in Maharashtra also help in determinating the date of the Middle Stone Age assemblage. While dam-cutting at Mulanagar in the Valley of the Mula, a tributary of the Pravara-Godavari, it was found that the old river had filled up a deep trough with fine gravels and sand. At a depth of nearly 100 feet from the present surface was found a typical flake of the Middle Palaeolithic, whereas at a similar depth was noticed a huge carbonized trunk of *Terminalia Arjuna*. C-14 determinations place this deposit in 30030±5715 and 39000 B.P.[1] Similar C-14 dates have been taken of the deposits found at Paithan, Inamgaon and Dhon-Dam. These dates vary between 17,000 and 39,000 years B.P. Thus as far as Maharashtra is concerned, the Middle Stone Age assemblage can be dated to the Late Pleistocene in *C*. 30,000 B.P. At Bhadar Hill on Bhadar and at Somnath on Hiran in Gujarat; on Belan in Uttara Pradesh and at Rati Karar on Narbada, C-14 dates have been attempted.[2] The remains of *Bos namadicus* and *Elephas* discovered in deposits prove that these typically Middle Pleistocene fossils survived into the Late or Upper Pleistocene. The evidence of C-14 determinations as well as of fossils may help in determining the period of Middle Palaeolithic Culture of India which is placed between *C*. 50,000 and 20,000 B.C.[3]

ORIGIN

Foreign

The question of the origin of Middle Palaeolithic Culture is controversial because no evidence of any skeletal data has so far been discovered. It is presumed that this culture has many typological parallels with cultures called Levalloiso-Mousterian in Western and Central Asia, in Western Europe and Africa. Broadly these cultures flourished between. 45,000 B.C.—30,000 B.C.[4]

The tools of the Middle Palaeolithic Culture are quite different from the Hand-axe Culture of the early period. The typical nature of this industry and the use of the new material suggests a basic change in the life of the people. It proves the advent of a different cultural force. It may denote the arrival of a different people from outside who exercised a new cultural influence. Gradually, they spread all over India, and gave individuality to this culture. H.D. SANKALIA[5] and A.P. KHATRI[6] are of the view that these people most probably came from Africa. ALLCHIN[7] thinks that in the early stages, this culture was in contact with similar industries in Central Asia, and later developed in comparative isolation for a long time in the regions south-east of the Sind desert. There is some evidence to attribute this Levalloiso-Mousterian Culture to the Neanderthal race in Central Asia, Iran, Iraq and the Libyan Littoral Palestine.[8] But this cannot be possible in India until and unless some skeletal remains are found.

1. *Ibid.*, p. 146.
2. *Physics News*, Vol. 6, No. 4. p. 5.
3. *SPPIP*, p. 15.
4. *Ibid.*, p. 205.
5. *Ibid.*
6. *Stone Age Cultures of Malwa.*
7. "The Indian Middle Stone Age: Some new sites in Central and Southern India and their Implication", *BLUIA* No, II, pp. 1-36.
8. *SPPIP*, p. 205.

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Indigenous

On the other hand, there are some scholars who are of the opinion that this culture is indigenous. K.D. BANERJEE,[1] after his detailed study of Nevasa and North Karnataka material, postulated that this culture had evolved out of the earlier Handaxe-cleaver Culture, because techniques like the block-on-block and cylinder hammer characterised both, as well the borer, which is a type tool of the Nevasian and which is also available, though very rarely, in the earlier industry.

Similar is the view of SOUNDARA RAJAN[2] who holds that the nature of stratigraphy by which Acheulian tools and Middle Stone Age flakes appear to have been found side by side on the top of the second gravel of the Narmada, together with the nature of occurrence of fossil fauna like *Bos Namadicus* Falconer, in the gravels of Godavari, Narmada, etc., both in the Early Stone Age, and continuing in the gravels of the Middle Stone Age, would seem to show an essentially gradual ecological change and a cultural continuum. At Mahadeo-Piparia and Nevasa, the Handaxe Culture and the Middle Palaeolithic Culture flourished side by side. In Madras, Lower Deccan, Saurashtra and Kutch, Middle Stone Age tools were made of the same material as those of the Early Stone Age.

However, much more stratigraphic and other data, as well as a comparative study of the Indian, African and Central Asian industries is necessary before something definite can be said about the origin and relationship of the Middle Palaeolithic Culture. At present nothing can be said positively.

1. *Middle Palaeolithic Industries of the Deccan*, p. 291.
2. *IP*, p. 43.

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CHAPTER VI

UPPER PALAEOLITHIC CULTURE
(*C.* 20,000—10,000 B.P.)

Upper Palaeolithic Culture consists of Blades and Burin tools. Tools of this type were discovered even earlier, but as a component of distinct culture they were recognized recently. R.B. FOOTE[1] regarded bone objects found from the Billasurgam caves in Kurnool District to be of the Magdalenian type or Upper Palaeolithic. L. A. CAMMIADE prepared the collection of stone tools found from the south-east coast of India.[2] But since the stratigraphical evidence is slight, BURKITT grouped the backed blades and burins under Series III, though it was felt that this group would both typologically and stratigraphically precede the surface microliths.[3] H.D. SANKALLA[4] placed the tools found near Baroda under Middle, Upper Palaeolithic and Mesolithic. The Nevasa Blade and Burin tools obtained from gravel III were designated Series III.

Excavations and explorations in the Chitoor and Kurnool Districts of Andhra Pradesh have yielded definite, stratigraphical, archaeological and palaentological evidence to designate this culture as Upper Palaeolithic. Excavations in Uttar Pradesh, Madhya Pradesh and Bihar give much needed material and place Blade and Burin culture in a period between the Middle Palaeolithic and Microlithic cultures.

DISTRIBUTION

ANDHRA

The best and most convincing evidence for proving separate lithic culture known as Upper Palaeolithic is from Chitoor and Kurnool Districts of Andhradesa. The Blade and Burin industry from Chitoor and Kurnool is not different from the classic Blades and Burins of the Upper Palaeolithic Culture from Western Europe and West Asia. There is also paleontological evidence from the Billasurgam caves

1. *Collection of Indian Prehistoric and Proto-historic Antiquities*, pp. 118-119 and 190-191.
2. *Antiquity*, Vol. IV, 1930, p. 328.
3. *Ibid.*
4. *SPPIP*, p. 207.

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to place this phase in the Upper Pleistocene. The sites near Renigunta[1] yielded tools out of which blade and burin can be separated. The material is milky quartz.

The collection of blades and burins at Mallagundlu has been made from surface and also from excavation. The number of burins in this collection seems to be the largest so far found anywhere in the Indian sub-Continent. There are different types of tools. They match the European and Western Asiatic types. They form 35% of the collection. The Backed blades form the second largest group of tools in this collection. These tools meet the needs of daily life such as of hunting and of collection of roots and fruits. Several tool types have been found at Rallakalava, and among them there are also blades and burins. None of them show crested ridge technique. Equally rich site is of Yerragondapalem in Prakasam District. This site yielded not only blades and burins but also the tools of the earlier period. The industry of this site consists of groups not different from Renigunta. Geographically, culturally and chronologically, they belong to the same period. Different types of tools have been discovered at Vemula,[2] a village about ten Km. south-east of Pullivendla town, District Cuddapah. Some tools may be assigned to the Upper Palaeolithic Period.

Muchchanta Chintamani Gavi[3] comprises lithic industry and bone tool industry. The bone tool industry forms 90.30% of the total tools. The long bones exactly resemble those of the Upper Palaeolithic of Western Europe. These tools with faunal remains with a blade and bone technology are comparable to Upper Palaeolithic phase also.

Nagarjunakonda in the Krishna Valley in the District Guntur is rich in stone tools.[4] The blades and burins form a different group. Though there is absence of stratigraphical evidence, one can isolate the Burin and Blade industry from the nature of raw material and typo-technologically. In the rest of Andhra Pradesh, blades and burins of Upper Palaeolithic have been found occasionally.

KARNATAKA

The Blade and Burin culture existed in Karnataka also. The region of Salvadgi and Meralbhavi, where these tools have been found, forms part of the Krishna-Bhima or Shorapur Doab.[5] At Salvadgi, this type of tools must be located in stratified context. PADDAYYA discovered a large workshop at Meralbhavi about three km south of Salvadgi. Out of the collection of 963 tools, 446 belong to the blade tool industry. The industry is exclusively on reddish brown chert, and the artifacts from the factory sites are in a mint condition. PADDAYYA has classified

1. M.L.K. Murthy, "Blade-and-Burin and Late Stone Industries around Renigunta, Chittoor District", *Indian Antiquary*, 1970, pp. 106-126. See also *Stone Age Cultures of Chittoor District*, Ph. D. Thesis, Poona University, 1966.
2. "Vemula Industry in Guddapah Basin", *Indian Antiquary*, 1970, pp. 227-234.
3. *SPPIP*, pp. 215-217.
4. Soundara Rajan, K.V., "Stone Age of Nagarjunakonda", *AI*, No. 14, 1956, pp. 49-113.
5. Paddayya, K., "The Blade Tool Industry of Shorapur Doab", *Indian Antiquary*, 1970, pp. 165-190.

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these tools on the basis of the nature of working under three groups—(1) Edge tools, (2) Non-Edge tools and (3) Multiple tools. No doubt a fairly good variety is seen among the burins, still they lack the finish and refinement of classical Upper Palaeolithic burins. In the Shorapur industry, there is absence of true blades, and the presence of multiple tools, such as blade-*cum*-borer and point. Typologically it should be regarded as slightly earlier than the true Blade and Burin industry from Renigunta and Yerragondapalem.

BIHAR

Singhbhum[1] seems to have preserved a neat geological, climatic and archaeological sequence of the Palaeolithic cultures. The flake industry with its scrapers and borers can be placed in the Middle Palaeolithic Period. Then the succeeding flake-blade industry from the Upper clay would naturally come under Upper Palaeolithic.

The number of different artifacts found from five groups of sites in Singhbhum reveals that the number of scrapers is more than 50%. There are only a few blades and the number of burins is still less. The presence of blades and burins proves the existence of this industry. But numerically and typologically, the Singhbhum Industry cannot be regarded as full-fledged Blade and Burin Industry. Looking at the number of scrapers, it is more reasonable to link it with the Flake Industry.

UTTAR PRADESH

The tools found along with microliths from the rock-shelter near Bausali at Lekhahia and at Rajput in Mirzapur District[2] seem to be of an Upper Palaeolithic character but they actually lack the true features of the classical Upper Palaeolithic industries.

In the Belan Valley, the yellow silt (layer 5) and cemented gravel III (layer 4), from below have yielded evidence of an Upper Palaeolithic Industry. Layer 4 has yielded purely a Blade Industry. Layer III consisted of Upper Palaeolithic blades 27% and non-geometric microliths 73%. Hence, stratigraphically there is a clear evidence of Upper Palaeolithic Culture. But according to H.D. SANKALIA and MISRA, these blades and BURINS did not comprise the classical Upper Palaeolithic types.[3]

MADHYA PRADESH

While discovering the well developed Middle Palaeolithic Industry in the heavily forested region of Upper Son Valley[4] located in the Districts of Sidhi and Shahdol, NISAR AHMAD revealed the existence of even the fine Upper Palaeolithic blades but he could not separate them properly from other types of stone implements. There

1. Ghosh, A.K., "The Palaeolithic Cultures of Singhbhum", *Transactions of the American Philosophic Society*, New Series, Vol. 60, Part I, 1970, Philadelphia.
2. *I.A.R., 1955-56*, p. 4: *1956-57*, pp. 14-15.
3. *SPPIP*, p. 224.
4. Nisar Ahmad, *The Stone Age Culture of the Upper Son Valley*, Ph.D., Thesis, Poona University, 1966,

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were two fine blades from Babburi and Jogdah. Blade and burins have also been found *in situ* at Bamni near Mandla on the river Banjer, a tributary of the Narmada.[1] The excavations conducted in the rock-shelters and caves known as Bhimbetka[2] in District Raisen gave concrete stratigraphical evidence of the existence of distinct Blade and Burin Culture. The rock-shelter of Bhimbetka (III F-3) gave a flake industry which primarily included scrapers of various types, points, and borers and also Levallois flakes and blades. Over this deposit was a layer which contained a few burins made on thick blades and flakes and several types of scrapers of which the end-scrapers recall the classical Upper Palaeolithic of Aurgnacian types of Western Europe.

MAHARASHTRA

A clue of the existence of blade and burin tools of an Upper Palaeolithic type was given by K. R. U. TODD[3] from the sites such as Borivli and Kandivli in the Bombay area. At Kandivli, a succession of clay gravel, clay gravel and clay was noticed by him. Here in the topmost gravel, these blade and burin tools were found. This original collection was examined by BURKITT, but H. D. SANKALIA[4] is of opinion that what looked like burins might not be true burins, but pieces with a natural burin like facet. As the original collection of tools is not available for examination, nothing can be said positively about the nature of these tools. Still, the stratigraphical position of blade and burin is significant.

At Nevasa, along with the Middle Palaeolithic tools, some lithic long blades and burins on chalcedony were found. Since these were quite different typologically from the microliths and the chalcolithic blades, H. D. SANKALIA designated them as Series III.[5] Now these are called by the name of blades and burins. SALI discovered lithic tools on jasper and chalcedony in the second gravel at Bhadne in Dhulia District. These include fluted cores, a parallel-sided blade, a burin, scrapers and flakes.[6]

Patne, a village in Chalisgaon Taluka of Jalgaon District, is an important site for the study of Upper Palaeolithic Culture.[7] It provides a sequence of Stone Age industries from the Middle Palaeolithic to the Mesolithic through the Upper Palaeolithic which is noticed in four phases. Jasper was used as the chief raw material in the earlier two phases of the Upper Palaeolithic whereas chalcedony was preferred in the later two Upper Palaeolithic phases.

The first phase seems to represent the evolutionary stage of the Upper Palaeolithic. The stone industry of this phase is marked by the occurrence of a thick backed knife, an end-scraper on a broad and thick blade, a burin as well as slight increase in the blade element and a sudden decrease in the proportion of scrapers on flakes.

1. Ghosh, A.K. in V.N. Misra and M.S. Mate (eds,), *IP*, p. 49.
2. *SPPIP*, p. 225.
3. Todd, K.R.U., "Palaeolithic Industries of Bombay," *JRAI* LXIX, 1939, pp. 257-72.
4. *SPPIP*, p. 226.
5. *Ibid.*, (Old Edition), p. 119.
6. Sali, S.A, "Quaternary Stratigraphy in the Kan-Basin", *JASB*, Vol. 39 for 1964-65, 1970, pp. 157-67.
7. *SPPIP*, pp. 226-228.

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The second phase is considered to be the earliest classical Upper Palaeolithic phase at Patne. Tools were discovered in a calcareous gravel. There is a definite increase in blades and the corresponding cores as well as the tools made on blades. The blades on the whole are broad, long and thick. Among the finished tools are included two fully backed blades of which one has been turned into a burin, finely retouched blades, two end scrapers on blades, a borer on a long, broad and thick blade, a few burins on thick flakes and blades and a few scrapers on flakes.

In the third phase, the blade tools are smaller than those of the preceding phase. The whole assemblage is dominated by these tools which include tanged and pen-knife blades, backed blades and finely retouched blades. The burins are made on blades, flakes and cores, and their number is about one hundred. Besides, there are some points on blades and flakes, a few of them tanged. A few of the scrapers are on blades. The most important is of a disc-bead made on a fragment of an ostrich egg-shell. This is known to be the first and the earliest ornamental object of the Upper Palaeolithic Man so far found in India.

The fourth phase represents the end of the Upper Palaeolithic and the beginning of the succeeding Mesolithic Culture. Artefacts have been recovered from the brown sandy fine gravel and the overlying yellow kankary silt. The distinguishing feature from the preceding one is the occurrence of a very small proportion of geometric forms such as triangles and trapezes. The lithic tool industry of this phase is dominated by blades and tools made on blades such as burins, points and scrapers. The blades are of various sub-types including steeply backed pen-knife and minutely retouched ones. Majority of the burins are made on blades and cores while a small proportion are on flakes.

That a distinct Blade and Burin Industry or Culture once existed in the Ahmednagar and Parner Districts of Western Maharashtra has also been shown by numerous sites incidentally explored by MALHOTRA and his colleagues.[1]

GUJARAT

The Microlithic and Upper Palaeolithic industries in association with fossil sand dunes have been found round about Pavagarh hills in Central Gujarat. These stone industries provide us not only a relative sequence but also give information to some extent regarding the environment when the Upper Palaeolithic and the Mesolithic men lived in this region. When the former lived here, a period of aridity was in progress but aridity had ceased before the arrival of microlithic man.

The tools recovered from dune at the site Visadi reveal that they belong to a single industry which is homogeneous technologically. It is different from the microlithic industry of the region. First it is massive, that is the flakes, blades as well as the cores are much thicker than in the microlithic industry. Second, the technique of striking blades and flakes is by direct rather than indirect percussion. Then, the flakes and blades being thick and heavy are unsuitable for use as composite tools, such as arrowheads, harpoons and sickles. Finally, the industry contains a fairly good percentage of Upper Palaeolithic types of burins. This is the most important

1. *Ibid.*, p. 228.

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feature of the industry. These burins are made on tabular pieces of quartz, the straight sides and corners providing natural striking platforms for the removal of the burin spalls. Besides the burins, there are parallel-sided blades, flakes, scrapers and cores. It is held that this Upper Palaeolithic industry at Visadi may be dated 40,000 and 12,000 B. P. and the Mesolithic Pavagarh between 9,000 B. P. and 3,000 B. P.[1]

TWO CATEGORIES OF BLADE AND BURIN TOOLS

These blade and burin tools of the Upper Palaeolithic Age may be divided into two categories : (1) Classical Blade and Burin industry of the European type and (2) Sub-Classical Blade and Burin industry.

Classical Blade and Burin Industry

So far only a few types of tools are noticed, and they are not of rich variety as seen in Europe. These blades and burins are long, slender but robust but fully retouched or blunted as in the classical Gravette point. Among these tools, scrapers also play an important part. In Europe, specimens of rich art and human remains known to be of *Homo sapiens* are found in association with blades and burins but these are not found in India.

Sub-Classical Blade and Burin tools

These tools are not invariably fine, and are not of the true European type. Both these Blade and Burin industries stratigraphically fall within the Pleistocene. They succeed the Middle Stone Age in which blades and burins are few or absent, and are followed, almost all over Peninsular India, by a microlithic industry which is initially non-geometric and unassociated with pottery.

DATE

The Upper Palaeolithic has a two-fold connotation. First and the most important, the object whether it is bone, stone or wood, must fall within the Palaeolithic period. Secondly, the Upper Palaeolithic is assigned to the last phase of the Upper Pleistocene. This has been dated by C-14 method at a few sites in Europe and Western Asia and North Africa. Everywhere the dates would be identical, and would fall within the time bracket of 30,000—10,000 B. P.

The gravel layer below the black or brown soil or the compact brown silt is regarded as having been formed during the last aggradational phase in the Peninsular rivers during the Upper Pleistocene. Generally the gravelly layer or red brown silty clay is noticed below the top layer of black brown soil. This black or reddish brown soil has been dated to about 9,000 B. C. Thus gravel layer below black or red brown soil during the Upper Pleistocene is much earlier. This conclusion may be reached in another way. The middle gravels in Maharashtra and by extrapolation elsewhere has been dated to a period before 30,000 or 37,000 B. P. These contain Middle Palaeolithic tools. Thus the top gravel and the overlying soil may reasonably be dated to the closing phase of the Upper Pleistocene and sub-recent period respectively.

1. *SPPIP*, p. 229.

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ORIGIN

With regard to the origin of the Blade and Burin Culture, nothing can be said positively at this stage. The Western European Blade and Burin Cultures have been traced by some scholars to Mount Carmel and not from the earlier advanced Palaeolithic Industries in the Near East and North Africa.[1] Indigenous development was claimed for Indian Industries by the study of Blade and Burin industry of Renigunta. But in view of its wider ramifications and the likely or probable connection of the Middle Palaeolithic with that of West Asia, Europe and Africa, one should wait for further evidence. It is from these Upper Palaeolithic Blade and Burin industries, that the Mesolithic culture developed.

1. Coles and Higgs, *The Archaeology of Early Man*, p. 371.

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CHAPTER VII

MESOLITHIC CULTURE
(*C.* 8000 B.C.—2000 B.C.)

The term 'Mesolithic' is used to distinguish a transitional phase from the Palaeolithic to Neolithic Culture, and it bridges the gulf between the two. It is different from the early period in climate, technology and other spheres. The old glacial conditions had more or less disappeared, and the dry period had started. With the climatic changes, the flora and fauna altered, consequently also the implements. Technologically, tiny tools known as 'microliths' highly improved upon the earlier ones were devised. Hence this culture is also famous by the name of microlithic. There is the continuation of the palaeolithic economy, but the emphasis shifted from big game to small game hunting. The occupation of sites was more extensive and intensive than that of any of the two preceding Stone Age Cultures. But all microliths do not suggest or stand for a Mesolithic stage of culture, but context and stratigraphy can only prove their genuineness. They may be placed between *C.* 8,000 and 2,000 B.C. They are post-Pleistocene (Holocene) and post-Palaeolithic. Even upto very late period, the use of microliths continued but not in true sense.

DISTRIBUTION OF MICROLITIC SITES

From the wide distribution and nature of the sites, it is clear that the mesolithic occupation of India was much more extensive and intensive than that of any of the two earlier Stone Age Cultures. Whereas Palaeolithic Man had largely confined himself to river banks, Mesolithic man had ventured into territories hitherto unoccupied, away from river banks. Taking into the consideration of raw material and environment, these mesolithic sites may be divided into following types : (1) Open rocky areas, (2) Sandy areas, (3) Coastal area, (4) Caves and rock-shelters and (5) River banks. No microliths have been reported from Assam, Bengal, Nepal, generally the Gangetic Valley proper, the plains of the Punjab and Kerala. The absence of microliths in Assam and Nepal may be due to thick forests and altitude, and in the Punjab plains generally the Gangetic Valley and deltaic Bengal, for want of suitable raw material and environment. The same may be the case with Kerala.

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WEST BENGAL

In West Bengal, several microlithic sites have been explored in the Districts of Bankura, Birbhum, Burdwan and Midnapore.[1] Among them, the site of Birbhanpur[2] near the Durgapur railway station on the bank of the Damodar river in Burdwan District, West Bengal discovered and excavated by B.B. LAL is very important. The Microlithic Industry of this place is pre-pottery in age and essentially non-geometric in character. Another noteworthy point about the industry is the absence of the 'crested ridge'—a feature so typical of the microlithic industries of the Chalcolithic Period. The chief raw material used is quartz. The chief types of tools are core, flake, blade, lunate, trapeze, trinagle, point, borer, burin and scraper. This industry may be dated 4000 B.C. The area around Birbhanpur brought to light three other microlithic sites, viz. Dejuri, Malandighi and Gopalpur.

BIHAR

Marvania and Pratappur in District Palamau were found to be rich microlithic sites. A large number of microlithic tools, both geometric and non-geometric, representing lunates, burins, points and blades were picked up along with a few Upper Palaeolithic blades. Microlithic tools, again both, geometric and non-geometric were collected from Kuchajharia, District Ranchi and its neighbourhood.[3] Microliths of the geometric type were found at Ambarpur, Dhal-Taur, Hainchula, Kurmahat, Lagba and Rajapokhara in District Bhagalpur and at Buddhudih, Bheladih, Chawdhridih, Chora-dih, Dabur, Dubarkunda, Dumar, Gholajuri, Ghoralash, Indapahari, Kamkarshola, Karnakolajore, Khutiya, Madhuban and and Tepra in District Santal Parganas.[4]

UTTAR PRADESH

The important microlithic sites of Uttar Pradesh are Sarai Nahar Rai, Lekhania, Morahana Pahar and Belan Valley. The site of Sarai Nahar Rai[5] is situated on the bank of a horse-shoe lake, and it is situated at a distance of 15 Km. from Pratapgarh in south-westerly direction as the crow flies. Not only in Uttar Pradesh but in India, this site carries great significance because so far the earliest date of the Microlithic Culture is known from it. It is a rich microlithic culture which comprises scrapers, points, parallel-sided and blunted back blades and lunates. The preferred raw mateial is chert though occasionally chalcedony, agate, quartz and carnelian were also used. The nodules of all these were imported from the Vindhyas which are situated at a distance of 40 Km to the south.

The Microlithic Culture of Sarai Nahar Rai is pre-pottery culture because pottery is completely absent in the burials, floor and hearth exposed in the excavations. From the study of the skeletons discovered in burials, it is known that people buried their dead in an extended position in west-east orientation with the

1. *I.A.R., 1960-61*, p. 67; *1961-62*, p. 59.
2. *AI*, XIV, 1958, p. 4.
3. *I.A.R., 1959-60*, p. 12.
4. *Ibid., 1963-64*, p. 5.
5. *SPPIP*, pp.239-240.

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head lying towards the west. At the time of burying the dead the fore-arms of the individual was diagonally placed across the abdomen region. The average height of skeltons both males and females was six feet. They probably belong to a race of dolicocephalic people, very tall and healthy and with very powerful muscular build.

Hearths discovered in the excavations were either oblong or circular in shape. Burnt clay lumps, animal-bones—charred and uncharred—and microliths were obtained from these hearths but no human bone. One floor littered with burnt clay lumps and animal bones, charred and uncharred was excavated. The floor was enclosed by four post-holes forming a rectangle. A number of hearths were also excavated forming part of the floor. Probably it was a communal hearth of the tribe whereas the smaller hearths were utilised by the different family units.

The animal bones recovered from hearths and floors give an idea of the fauna of that time. The bones of stag, bison, rhinoceros, fish and tortoise have been discovered. People lived on by hunting these animals. The radiocarbon date so far available is 8395±110 B.C. But since this date is based on calcified bone, its reliability will be determined when dates on charred material are available.

Some of the rock-shelters of this region yielded microliths on the floors. From the area were recovered seemingly Upper Palaeolithic and microlithic tools along with fossilized bones. The excavation at Lekhahia,[1] 69 Km east of Mirzapur, indicated the following sequence: Phase I, non-geometric, pre-pottery heavily patinated microliths; Phase II, geometric microliths without pottery; Phase III, geometric microliths with pottery and Phase IV, geometric and diminutive microliths with pottery. For this site, there were two C-14 dates ranging between 2400-1700 B.C.

The Singrauli Basin[2] of Mirzapur District is also a famous microlithic site. Here the microliths occur about four feet below the Upper alluvium along the southern bank of Balia Nadi near Kota. It is predominantly of quartz which is easily available in the vicinity. It is non-geometric denoted by parallel-sided blades, lunates and points. Only a few tools are either finished or retouched. It is not associated with pottery. The other sites[3] Barkacha and Ronp of this District also yielded a large number of microlithic tools. In the Belan Valley, microliths of non-geometric type were found unassociated with pottery.[4]

ORISSA

Microlithic tools in Orissa were found loose on surface and in dry bed of the rivers. Microlithic sites have only been found in the Districts of Sundergarh, Dhenkanal, Puri, Mayurbhanj and Keonjhar. In the District of Mayurbhanj, they have been found at Bisai, Rairangpur and Bodra. In the Keonjhar District, Patna has yielded only one small fluted core. Four sites discovered from the Bonai subdivision of Sundergarh District are Bhaludungari, Bhangarh, Khuntagaon and the Kurhadi Minor Irrigation Project. Sometimes they occur in the same site along

1. *I.A.R., 1963-64*, p. 51.
2. *AI*, No. 7 (1951), p. 59.
3. *I.A.R., 1956-57*, p. 11.
4. *SPPIP*, p. 238.

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with the Middle Stone Age tools or in its neighbourhood. The inter-relation between the tools of two different industries is probably due to the use of the same raw material. Quartzite, jasper, chert and opal are the only material out of which these microliths are made. Parallel-sided blade, fluted core, scrapers of various types, points and lunates are the constituent tool types. On the whole, the industry presents a technically crude appearance. Some of the specimens are also rolled and weathered. They are purely non-geometric in character and no pottery has so far been found with them.[1]

ANDHRA

In Andhra Pradesh, the important microlithic sites have so far been noted are Nagurjunakonda in Guntur District, Giddalur in Kurnool District, and Sanganakallu in Bellary District. The absence of pottery, the crude technique and the non-geometric character are the characteristics of the Nagarjunakonda industry. This industry is made entirely on silicious rock material. The predominant tool types are almond-shaped-points, backed blades, crude lunates, side, end, and thumb-nail scrapers, perforators or awls and burins; of these, the burins are particularly interesting.[2]

The tools of microlithic industry at Giddalur[3] were found on the surface. The main raw material is vein quartz of the milky variety. Both the cylinder-hammer and pressure technique have been applied for making the tools. The industry is mainly non-geometric, parallel sided blades, backed blades, lunates, side and end-scrapers, borers, almond-shaped points, tanged points with single and double shoulders, burinate tools, obliquely blunted points and cores are the main types of tools.

The microliths of Phase I of Sanganakallu[4] are mainly made out of quartz and associated with the patinated flakes. Flakes, fluted cores and scrapers are the constituent tool types. It is a pure microlithic industry. The small potsherds found with the microliths of Phase I are the subsequent infiltration. There is no definite evidence of the association of pottery in this phase. The average standard of workmanship is crude. This site has given the stratigraphical position of the pre-pottery non-geometric microliths in relation to the later cultures like the chalcolithic and the polished stone celts of the Neolithic Culture.

KARNATAKA

A large number of microlithic sites have been reported from Karnataka region. Very often, the microliths are found on the bare surface of these hills or hillocks and as such are without any association. The Jalahalli microlithic industry is not associated with pottery. The occurrence of crescents, burins, triangles, transverse arrowheads, scrapers, flakes, lunates, points and parallel sided blades indicate that it is a mixed industry of both the geometric and non-geometric forms; but the

1. *The Stone Age Cultures of Orissa*, pp. 121-132.
2. *AI*, No. 14 (1958), pp. 49-113.
3. *Ibid.*, No. 8 (1952), pp. 64-92.
4. Subbarao, Bendapudi, *Stone Age Cultures of Bellary*, 1948.

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former predominates. It represents a phase in between the pre-pottery and pottery-microliths. This industry with a preponderance of crescents, points and arrow-heads indicates a hunting economy and environment.

The Brahmagiri microlithic Industry consisting primarily of parallel-sided flakes, and Gravettian-like penknife blades, implying a semi-urban culture in which arrowhead, crescent, etc., are absent. There is also a third group, formed by Kibbanahalli in which there are three or four types of scrapers, blades, and highly finished lunates. Brahmagiri Microlithic Industry indeed forms a part of the vast Chalcolithic Culture-complex, which was mostly of a peasant-village type.[1]

Genuine microliths can be distinguished from blades of Chalcolithic Culture in the area of Karnataka. Though both occur together in several sites along the river banks, the former are found exclusively, either in rock-shelter and caves like the Shidlapadi near Badami,[2] and the foot-hills near Bilgi and also in the top, loose deposits capping the old alluvium. The material is generally carnelian and such varieties of chalcedony, though occasionally chert and jasper which formed the chief source of the Middle Palaeolithic people.

TAMIL NADU

The microlithic sites of Tinnevelly District, Tamil Nadu are known as *Teri* sites, because these are associated with fossil red sand-dunes locally called *teris*. Hence ZEUNER[3] calls this "the Tinnevelly Teri Industry". The known sites are—Megnanapuram, Kuttampuli, Kuthankuli, Sawyarpuram, Kattalankulam, Kulatur, Puttam Taruvai and four others. The chief raw materials of the *Teri* Industry are quartz and chert. Geometric forms occur in a large number together with the non-geometric forms. Flakes, blades, awls, discoids, transverse arrowheads, lunates, triangles, scrapers, burins, small chopping tools and points are the constituent tool types. Among these tool types, the lunates preponderate as is usual in pure microlichic sites. The most distinctive feature of this industry is the presence of pressure-flaked bifacial points. This *Teri* Industry is unaccompanied by axes and pottery and almost certainly made by hunting and fishing people. The industry commands a considerable antiquity due to its association with the fossil-soils and in all might have preceded the neolithic polished stone celts.

The microliths from Megnanapuram are taken to be the earliest of all the *Teri* Industries, which flourished before the introduction of blades and geometric forms. On the ground of staining, it may also be possible to say that the tools from Kulattur are comparatively later, because they are almost completely without the usual red stain.

Besides typology of the tools, ZEUNER gives an interesting picture of the climatic and geographical conditions of the area. When the Microlithic man first inhabited the area, the sea level was higher by about 20 to 30 feet. This was due to a drier climate. Locally this led to the formation of sand-dunes—the first *Teris* and lagoons,

1. Seshadri, M., *The Stone Using Cultures of Pre-Historic and Proto-Historic Mysore*, London (1956), p. 29.
2. *I.A.R., 1955-56*, p. 5.
3. Zeuner, F.E. and Allchin, Bridget, *AI*, No. 12 (1956), pp. 4-20.

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owing to increased wind activity. It was on these *Teris* that people sat. Afterwards the climate changed and weathering occurred. This made the dunes to get fixed reddish and cemented. It is in the old reddish *Teris* (fossil dunes) towards the top, that most of the microliths are found.

MAHARASHTRA

Dighi near Poona, and the Ellora and the Karla caves are strewn with microliths. Raw material such as agate, chalcedony and quartz is plentiful in this area for the manufacture of these tools. Cliffs along the rivers Godavari and Pravara in the Districts of Paithan, Nasik and Ahmadnagar abound in microliths made principally on milky quarts, chalcedony and agate. These can be easily distinguished from the microliths of the Chalcolithic Period on the strength of thickness. The former includes short fluted and irregular cores, lunates, small parallel-sided and one-edged blades, scrapers of several types, and a large number of chips[1]

Even in Konkan area also, microliths have been discovered. Kandioli and other sites along the coast and the Thana creek and along the banks of the rivers like the Ulhas in the north and the Amba in the south of Bombay speak of a widespread habitation during the microlithic phase.[2] This region was preferred because raw material for manufacture of tools and food for livelihood are easily available here.

GUJARAT

A large number of microlithic sites are known from the surface discovered in Gujarat. Among a few excavated sites of this region, Langhnaj is very important. In the top layers, microliths have been discovered with pottery and mace-head or ring stone. In the lower layers, pure microliths without any association of pottery have been found along with animal remains and human skeltons.[3]

Lunates, semi-triangles, crescents, trapezes, flat and ridged long or short blades, roundish, rectangular or square-scrapers, tiny disc-like pieces or "core-trimmings", roundish and cylindrical cores are the constituent tool types of this microlithic industry. Among these, trapeze, crescents, triangles and ridged blades come under the category of the geometric tools. Most of these tools are crude and coarse though the material is chert, agate, carnelian and only occasionally quartz. A huge rhinoceros shoulder blade discovered here was used as an anvil for manufacturing microliths.[4]

Along with microliths, a large number of bones have been found. From their study, the fauna seems to be of games, and people were hunters and fishers. They subsisted on such games as the cow, buffalo, wild horse, ox, sheep, goat, dog, rats, fish and crocodile. Dentalium shells were used as decoration.

The attribution of the Langhnaj skeletons is a theme of keen controversy. One view is that racially these human skeletons show Hamitic Negroid characteristics, and hence might have been of people akin to those in North-East Africa and also

1. *SPPIP*, pp. 246-248.
2. Todd, K.R.U., *AI*, No. 5 (1950), pp. 1-16.
3. *I.A.R., 1953-54*, p. 8.
4. Zeuner, F.E., *Man*, Vol. LII, 1952, pp. 129-131.

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proto-Egyptians. McCown thought that the skeletons might well be compared with the Natufian of Palestine. The third view is that Langhnaj skeletons mainly indicate traits which are characteristic for Mediterranids and Veddids, but which could also include other races.[1] The crouching posture in which the skeletons have been found indicate that they were deliberately buried with a definite idea orientation. Large stone-pebbles of quartzite and portions of querns of sandstones had something to do with the burial ceremony.

No absolute date can be fixed for this microlithic site. Since microliths of Langhnaj type were also found in the lowest stratum of river gravel below the earliest deposit of the Indus Civilization at Rangpur[2] and also at Rojdi in Saurashtra, it may be argued that the Langhnaj Microlithic Industry is earlier than 2500 B.C. The C^{14} dates from this site give 2040 ± 110 B.C.[3] Besides, *dentalium* shells have been found at Langhanaj in the excavations., These have been reported from Mount Carmel and from Khirokitia in Cyprus and everywhere dated to period between 5,000 and 7,000 B.C. These shells indicate contact of the Langhanaj people with the Arabian Sea which is at least 90 to 150 Km. to the west.[4]

MADHYA PRADESH

Several microlithic sites are known from the sites in the valley of the Chambal and its tributaries in the Districts of Mandsaur, Ratlam, Ujjain, Indore, Khandwa and Nimar. Microliths were also discovered from the tributaries of the Narmada at several places.[5] These microliths of Madhya Pradesh have their own peculiarities. They generally occur on whitish translucent chalcedony or carnelian, and rarely in pure quartz or crystal. They occur in an unstratified context. These are of different types, such as fluted and irregular cores, scrapers and points and few blades. Only one backed lunate has been found at Deoguraria. They have non-geometrical shapes. No pottery has been found in association with them. They belong to the pre-Chalcolithic times (earlier than 2000 B.C.). They are of an earlier phase of hunting and forest culture before the establishment of early peasant settlement there.

Microliths in the form of cores, flakes and finished tools were found scattered over a considerable area at Maihar[6] situated at a distance of 66 Km from Rewa in south-westerly direction on the Rewa—Jabalpur Road in Satna District. As the artefacts were found in different stages of manufacture, the site may be designated as a factory site. This stone industry collected consists of 516 artefacts. It is primarily a blade dominated industry. The other tools like lunates and triangles are also fashioned on blades. There is no evidence to date the site in any precise terms. However, as geometric microlithic industries without pottery are dated by C-14 at Adamgarh and Bagor to *circa* 4500-5500 B.C. the Maihar industry may have a comparable antiquity.

1. *SPPIP*, pp. 256-257.
2. *I.A.R., 1953-54*, p. 7.
3. *Physics News*, Vol. 6, No. 4, p. 3.
4. *IP*, p. 70.
5. *Malwa Through the Ages*, pp. 56-57.
6. *Man and Environment*, Vol. I. 1977, pp. 61-63.

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Microliths of Rock-Shelters and Caves

Microliths have also been discovered in rock-shelters and caves in Madhya Pradesh. In the opinion of H.D. SANKALIA[1], the whole Vindhyan range from west to east is not only a prolific source of microliths, but perhaps holds the key to the microlithic or mesolithic problem of Central India. At Pachmarhi, HUNTER and GHOSH found microliths in rock-shelters. A large number of microliths consisting of blades, points, triangles, lunates, etc., were collected from the rock-shelters at Adamgarh near Hoshangabad.[2] They were found in the painted rock-shelters at Kobra Pahar. These were also obtained in the Dharmapuri rock-shelters near Bhopal.[3]

Barkhera 32 Km south of Bhopal, locally known as Bhimbetka is known for its rock-shelters and caves with paintings. These are in sandstone formations. The number of rock-shelters at this site is about six hundred. A few trial trenches in the Auditorium rock-shelters at this site yielded an interesting sequence of the Stone Ages. Period I of rock-shelters yielded the Palaeoliths. In period II, these tools were replaced by the Middle Stone Age tools. For preparation of these tools, only quartzite stone was selected. The third stage is represented by microliths having geometric and non-geometric forms.[4] In one of the rock-shelters, sherds of the Painted Malwa Ware were found above the layer containing microliths. This is the first time that microliths can be placed in some relative context. Here it is evident that the microliths belong to a pre-Chalcolithic period which on the evidence of Kayatha would be before 2000 B.C.[5]

The excavations at some of the rock-shelters and caves show the evolution of microliths from a non-geometric and non-pottery level at the very lowest to a pottery using geometric microlithic level. This shows that microliths were of early times. Their antiquity is further confirmed by the finds at Adamgarh where numerous microlithic were found in black soil.[6] This site has given 5500±130 date for microliths levels.[7]

Some of the rock-shelters and caves in Madhya Pradesh and Uttar Pradesh contain paintings.[8] In Madhya Pradesh, these have been found in the Districts of Sehore, Bhopal, Raisen, Hoshangabad and Sagar. These Districts are located in the Narmda-Betwa Valleys. Recently such rock-shelters have also been discovered near Bhanpura in Mandsaur District. These paintings are found on the walls and on the ceilings. Some paintings were made with white pigment, with black or deep purple obtained from magnesium oxides, and copper compounds to produce a bright shade of green while the great majority of paintings was done with hematite or other oxides of iron to provide colours in red, yellow, orange or brown. Most of these compounds are usually available in surface deposits not far from the paintings.

1. *SPPIP.*
2. *I.A.R., 1954-55*, p. 59.
3. *Ibid., 1955-56*, p. 69.
4. *Malwa Through the Ages*, p. 59.
5. *SPPIP*, p. 259.
6. *I.A.R., 1960-61*, p. 13.
7. *SPPIP*, p. 564.
8. V.S. Agrawala, *Indian Art*, pp. 10-13.

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These paintings furnish an idea of the cultural life of these primitive people. Animals are the most frequent subject matter, with human second, and symbols or purely decorative device third. The superimposed drawings show sequences in four series. The first two series are concerned with the hunting stage of the society. The first series are schematic figures only, divided into early and late. The first series are conventionalised human and animal figures in red and cream colours. They show square shaped bodies with triangular heads, the bust being filled by zig zag or wavy lines, probably representing some kind of bark garment. These paintings are superimposed by other figures and are scarce.

The later stage of the first series shows stick-like figures with a triangle head. The cream colour is interlined with red to depict hair or head. With the stick like figures also appear some in pink with triangular head and square body but with a single wavy line within the bust. These also belong to the same stage.

Paintings in grey or cream, crude but naturalistic, also divided into early and late; the early second series being very crude have only the rudiments of naturalism. The figures have elongated necks, wavy hair, generally featureless heads, thin sinuous legs and fringed skirts. In the late second series, some kind of grouping begins to appear and weapons such as bows and arrows which were scarce in the first series now become common. The people were hunters, hunting wild beasts, sometimes a tiger, a huge porcupine, sambhar both male and female and even elephant and oxen. Sometimes the hunting folk enjoyed a thrilling dance holding bows and arrows and using animal masks. Honey taking with a bamboo ladder from high trees or overhanging cliffs was a favourite pursuit of the hunters of the second series also.

There is a controversy among scholars about the authors and the dating of these rock-shelters. V.S. WAKANKAR and ROBERT R.R. BROOKS[1] are of the opinion that the painters of these pictures were the non-Aryan, non-Dravidian—speaking ancestors of the present day tribes. In support of this conclusion are two kinds of evidences, negative and positive. The most specific negative evidence is that there is nothing in the early rock paintings to associate the artists with the traits of the Aryan culture, such as cattle raising, agriculture and chariot driving horse men. The positive evidence is that many of the paintings show unmistakable evidence of having been lived by the people using stone tools or weapons identical with those shown in many of the earlier paintings.

Against the view of the ancestors of modern tribes as authors of these paintings, it is difficult to establish their links with them in the remote-past on solid foundations. Simply from the same mode of life in paintings of the present tribes, it cannot be argued that their authors in so early times were their ancestors. Some Aryan and Dravidian tribes living in the secluded areas of valleys, forests and deserts might be backward. Sometimes the de-socializing and deculturalizing factors might be responsible for such a stage of society. But on such a slender basis, nothing can be said positively about the authors unless some early skeletons are discovered.

1. *Stone Age Painting in India*, pp. 11-14.

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D.H. GORDON[1] stressed too much on late limits for these paintings. On the other hand, V.S. WAKANKAR, ROBERT R.R. BROOKS[2] and some other scholars[3] suggested the probability that some of these rock pictures were painted during a long span of time, beginning in early Mesolithic or before, and continuing until a few hundred years ago. Such paintings are also available in France, Spain, North Africa and the south-western corner of United States. There are four possible approaches to prove the dating of these pictures to Stone Ages.

(A) *Physical Conditions*

The four change namely burring, encrustation, patination and erosion in physical conditions help to a limited extent in assigning relative dates to rock paintings. When mineral pigments are applied to sandstone, the pigments form a bond with the rock. They cannot be washed off. Water exuded by the rock or dripping on it carries soluble chemicals, which gradually form a crust over the paintings as the water evaporates. A chemical or in some cases a biological change darkens a fresh rock surface or a freshy painted surface, even under desert conditions. The impact of wind driven rain or sand upon a painting grinds away both the pigment and the surface, leaving the painting, in some cases, as with the elephant at Adamgarh, barely discernible after long scrutiny. A very faint, much blurred, heavily patinated or encrusted painting is probably older than a vivid and sharply defined painting.

(B) *Classification of Superimpositions*

The method of classification of successive superimpositions of different painting styles upon each other helps us to determine the relative dates with certainty, because a picture painted on the top of another is decidedly later than the previous one. It is impossible to place the pigment of a later painting beneath that of earlier one. A large number of superimpositions reveal relative dates of the styles. The later paintings often cover but do not entirely conceal the earlier ones. Never in one shelter is there a complete sequence of all possible styles from the earliest to the latest. Since, however, it is possible to classify paintings into styles by subject matter, pigment and technique, the superimpositions in one shelter can be linked with those of another in a complete sequence.

(C) *Correlation Between the Subject Matter of Paintings and Already Known Prehistoric Periods of Historic Dates*

The most striking illustration of this approach occurs in the many paintings which show pictures of weapons used during the Mesolithic period characterized by the use of microliths—the small carefully shaped pieces of silicates designed to be fitted into bone or wooden handles for use as knives, scrapers, saws, sickles and barbs, or points for arrows or harpoons. They are easily distinguishable in the paintings from the larger stone flakes or cores of the preceding Upper Palaeolithic

1. *The Prehistoric Background of Indian Culture*, Chs. VI & VIII.
2. *Stone Age Painting in India*, pp. 22-26.
3. *Prachya Pratibha*, Vol. III, No. 2.

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and the smoothly ground and polished tools of the succeeding Neolithic. One of the most distinctive types of arrowheads developed during the Mesolithic. Illustrations of identifiable Mesolithic weapons appear most clearly in the paintings classified under style 5. The style 5 has been assigned to the Mesolithic Age. That four styles preceded style 5 that if style 5 began in the Mesolithic, the four styles, whose pigments lie successively below it, must be earlier.

(D) *Excavation*

In excavations of rock-shelters and caves and at some sites such as Mirzapur, Pachmari, Modi, Adamgarh, Raisen and Bhimbetka, microliths were recovered. Moreover they are also found on the surface. As a result of these excavation, the association of the early rock-shelter paintings with the Mesolithic is a reasonable hypothesis. This hypothesis received additional support. A dig in a rock-shelter at Adamgarh 60 Km south of Bhopal disclosed pieces of hematite in a layer of black soil along with a large number of microliths. Hematite is one of the iron oxide pigments frequently used in shelter paintings. Material taken above the hematite gave a carbon-14 date of *C.* 5500 B.C. There are at least ten painted shelters at Bhimbetka in which green paintings are superimposed by paintings which are classified as Mesolithic. The inference, that the green paintings are pre-Mesolithic and contemporary with Upper Palaeolithic tools, is therefore inescapable.

There is no doubt that these rock-shelters and caves with paintings were occupied by people during Mesolithic Age because microliths were discovered. Even they continued in diffrent succeeding ages. It is somehow difficult to accept that they started paintings in the Mesolithic Age or earlier. First of all, these paintings connot survive for such a length of time under the physical conditions prevalent in the past and the present of the concerned region. It is doubtful that Mesolithic people, who were savage, had developed such an aesthetic sense for starting these paintings. No doubt mineral pigments were available during the Mesolithic Age but there is no evidence that they were applied for paintings at such an early period. The classification of superimpositions of paintings reveals only their relative sequence one after the other but not their exact dates. The correlation between the subject matter of paintings and the tools already known during prehistoric period proves only the stage of culture but not the precise Mesolithic Age or earlier because tribal people with early traits of culture are noticed even today. From the discovery of the microliths in these rocks, one cannot be justified to infer that these paintings belonged to Mesolithic Age or earlier. The pieces of hematite in a layer with microliths were found in excavation. The hematite gave a carbon-14 date of *C.* 5500 B.C. It does not necessarily mean that paintings belong to such an early date. No doubt hematite was found in Mesolithic Age but there is no evidence of its being used as a pigment for painting so early.

SHANKAR TIWARI[1] is of view that Chalcolithic people and not cave dwellers were the first authors of the paintings found in shelters located at various places. These rock-shelters were never used by early men for dwelling purposes. There is

1. *Prachya Pratibha*, IV, 2, p. 62 ff.

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no clear evidence which could reveal or support their use as dwelling by the people of the by-gone ages.

It is difficult to assign an exact date to these paintings. It appears that only during the Gupta period people discovered blending of colours so as to give them some sort of permanency. The colour of these paintings if at all presumed to be. assignable to earlier than Mesolithic Age or Chalcolithic Age, can hardly survive in their vividness for such a length of time. These paintings reveal merely cultural stage but not time. It seems that they belong to a very late period. Their authors remained backward and uncivilized for a very long period because they lived for away in forests and secluded valleys.

RAJASTHAN

These microlithic tools are found on the hill fianks of Eastern Rajasthan as well as Western Rajsthan. In Eastern Rajasthan, a number of microlithic sites have been discovered in the Districts of Udaipur, Chitor, Bhilwara, Ajmer, Tonk, Jaipur, Kotah and Jhalarapatan. Among the microlithic sites of Eastern Rajasthan, Bagor[1] is very important. It is a large village situated on the bank of the Kothari, a tributary of the Banas. It is at a distance of 25 Km west of the town of Bhilwara. It consists of two phases—phase I is Microlithic and phase II is Chalcoithic. Phase I is devoid of metal and pottery.

Bagor is the most extensive site of Mesolihic Age discovered so far in India. The variety and quantity of cultural remains recorded from this site are exceptionally rich and unique. It is based on stone technology and hunting pastoral economy. A large number of bones were discovered. People lived on stone-paved floors and in all probably wattle huts or windbreakers, and buried their dead in an extended position in an east-west orientation.

This Microlithic Industry is most profusely distributed more or less all over the inhabited area. The main raw material employed was quartz and chert. It is based on the mass production of micro-blades and their conversion into various microlithic forms; large tools like scrapers, burins, etc., made on cores and flakes are very rare. More than forty types can be distinguished but the more common or typologically distinctive among them are blades with retouch, blunted back blades, obliquely truncated blades, obliquely truncated and blunted back blades, triangles mainly scalene but some also isosceles, trapezes, transverse arrowheads, rhombids, crescents and points. Besides there are also some tools made on flakes and cores side, end and round scrapers and burins. This microlithic industry is esesntially geometric and geared to a hunting economy. There is the complete absence of the crested guiding ridge technique which is the characteristic of the Neolithic and Chalcolithic Cultures. Another notable feature of this industry is the presence of *petit tranchets* or transverse arrowheads in good number. This type is rare in Indian Microlithic industries. This industry is charecterized by a perfect symmetry of tool form and a very high standard of craftsmanship. Numerous

1. "Bagor—A late Mesolithic settlement in north-west India", *World Archaeology*, Vol. 5, No. 1 (1973), pp. 92-110.

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hammerstones were also found. The earliest radiocarbon date available this site is 4600 B.C.[1]

Besides Bagor, there are two other notable sites such as Nimbahera[2] and Mandapia[3] which throw significant light on Microlithic Culture of South-east Rajasthan. Nimbahera is a small town located on the river Kadmali, a tributary of the river Gambhiri, 28 Km south of Chitorgarh. Microliths are found along the river bank over the alluvial terrace. As the industry of this site is non-geometric, it is possible that the geometric industry found at Bagor might have evolved from it. The material used for manufacturing them is exclusively bluish chalcedony. Blade and blade tools are found in large number. Microliths at this site include blunted back and obliquely blunted blades as well as lunates, all beautifully made and of a very symmetric shape. Besides, there are plains as well as utilized blades, several types of scrapers, notched flakes and utilised flakes. Because of its distinctive raw material and typology, the site of Nimbhera is to some extent unique in South Rajasthan.

The site of Mandapia lies on the right bank of the Banas, south of Bhilwara. Here the tools occur on a sand dume. Blades and blade tools like Nimbhera form a significant part of the artificial assemblage.

Several microlithic sites have been discovered even in Western Rajasthan on the bank of the river Luni and its tributaries. Among them, Tilwara, Sojat and Dhaneri are important.[4] Tilwara is located at a distance of 23 Km west of Balotara in Barmer. The raw material of this microlithic industry is chert, quartzite, quartz and rhyolite. It consist of blunted back and oliquely blunted blades and lunates, besides scrapers and burins.

Animal bones occurred here sparsely but were too small and fragmentary to be useful for identification. Pottery consists of red and grey ware. Both the wares are wheel-made and decoration consists of incised parallel lines and punctured designs.

The other two sites are Sojat and Dhaneri located in Pali District. There are likely to be many more microlithic sites in hill as the raw material for making tools was plentifully available here in the form of chert, flint, shale, silicified wood and even quartzite. The only microlithic type known is obliquely blunted blade, but numerous retouches blades and a variety of scrapers are also present. Midway between Sojat and Pali are the two closely situated sites of Jadan and Kanwas, the later being more promising than the two. Here microliths occur in plentiful. The tool types include blunted back blades and obliquely blunted points and there are numerous retouched blades and scrapers on cores as well as flakes and blades.

ECOLOGY

From the wide distribution and nature of the sites, it is clear that the Mesolithic occupation of India was much more extensive and intensive than that of any of

1. *SPPIP*, p. 564.
2. Misra, V.N., *Pre and Proto-history of the Berach Basin, South Rajasthan*, Poona, 1967, pp. 104-23.
3. *Ibid.*
4. Misra, V.N., Two Late Mesolithic Settlements in Rajasthan—A Brief Review of Investigations, *Journal of the University of Poona*, (Humanities Section), No. 35, 1971, pp. 71-77.

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the two preceding Stone Age Cultures. Whereas Palaeolithic man had largely confined himself to river banks, Mesolithic man ventured into territories hitherto unoccupied away from the river banks. The environments under which Mesolithic pepole lived may be divided into the followiog types: (1) open rocky areas, (2) Sandy areas, (3) Coastal areas, (4) Caves and rock shelters, and (5) River banks.

TECHNOLOGY

The tool types common to all industries are the blunted-back and obliquely retouched blades, simple points—both symmetric and asymmetric—made mostly on flakes, various types of scrapers, borers and to some extent burins. This industry seems to have developed through some stages: (1) Non-geometric crude tools unassociated with pottery; (2) The geometric shaped tools unassociated with any kind of pottery; (3) Geometric tools with pottery and (4) Geometric and diminutive tools with pottery. Among the geometric types, triangle and trapeze seem to be dominant.

DATING

The following methods have been employed for dating the Microlithic Cultures: (1) Stratigraphical, (2) Eustatic, (3) Cultural, (4) *Dentalium* shells and (5) Carbon—14.

(1) STRATIGRAPHICAL

Generally microliths occur on the surface, but at some places, they have been found in a stratified content. The fauna discovered along with these microliths does not show any evidence of domestication. It is likely that the Microlithic Culture may belong to the Holocene Period. In one of the rock-shelters dug at Bhimbetka, sherds of the Painted Malwa Ware were found above the layer containing the microliths. Here microliths can be placed in some relative context and they belong to a pre-Chalcolithic period. Some microliths of Langhnaj type were found in the lowest stratum of river gravel below the earliest deposit of the Indus Civilization at Rangpur and also at Rojdi in Saurashtra, it may be argued that Langhnaj industry may be earlier than the Indus Civilization.

(2) EUSTATIC

The only example, where an attempt has been made to link the ancient tool bearing deposits with sea level changes, is the *teri* sites. On the basis of the eustatic changes in the sea level and its relation to *teri* sites, ZEUNER dates the microlithic sites to about 4000 B.C.

(3) CULTURAL

There is no evidence at all of the use of crested-guiding ridge technique at the early microlithic sites. Thus the microliths from these sites can only be explained as belonging to Mesolithic hunter-food gatherer who occupied the area before the establishment of early peasant settlements there. Since they are free from crested-guiding ridge technique, they are either pre-Chalcolithic or contemporary with Chalcolithic Cultures but without coming into contact with them.

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Some Microlithic Industries of Gujarat, Rajasthan, Uttara Pradesh, south Madras and West Bengal seem to be of high antiquity, perhaps going back up to the Holocene period. On the other hand in isolated areas, particularly the caves and rock-shelters, the use of microliths continued upto historical times. In fact even after the use of stone tools became obsolete, several people continued to lead the Mesoiithic mode of life, and are indeed doing so to our own days.

(4) DENTALIUM SHELLS

Dentalium shells have been found at Langhnaj. Dentalium shells have been exported from Mount Carmel and from Khirokitia in Cyprus and every where dated to a period before 5000 B.C. MALLART suggested that dentalium shells may be regarded as a type of fossil of a period between 5,000 and 7,000 B.C. Thus the Langhnaj Microlithic site may also be of very early times.

(5) CARBON-14 METHOD

By Carbon-14 method, attempts have been made to measure the age of Microlithic cultures. The dates are: Sarai Nahar Rai (Uttar Pradesh) 8395 ± 110, B.C., Adamgarh (Madhya Pradesh) 5500±130, Baghor (Rajasthan), 4480±200, Lekhahia (Uttar Pradesh) 2410 ± 115 and Langhnaj (Gujarat) 2040 ± 110.

COMPARISON WITH THOSE OF EUROPE AND AFRICA

In India, there are no definite signs of Mesolithic Cultures comparable to those of Europe and Africa, either in time, contact or stratigraphy. They do not immediately overlie the Palaeolithic and underlie the Neolithic. In terms of evolution we cannot trace in adequate detail the step by step transition from Microlithic to Neolithic Culture. Culturally, they are similar to the industries classified as Mesolithic in Western Asia, Europe and Africa.

ORIGIN

EXTERNAL

It is not exactly clear whether microliths were the result of the influence of some external stimuli or they developed out of the earlier lithic industries. The wide distribution of the industry not only in India, but all over the world in Europe, Africa and Asia points to some cultural link. It is also held that probably a new race of people from Africa entered India with these implements. This Mesolithic Culture is of high antiquity in Palestine, Iraq and Soviet Central Asia. A Mesolithic site has recently been excavated in Afghanistan but its details are not known uptill now. If this culture is also of great antiquity like cultures further westwards, it might be again inferred that a further wave of people or cultural influence might have spread from west and entered the Indian sub-continent through the north-west[1].

1. *SPPIP*, p. 275.

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There are certain difficulties to draw such an inference. The microlithic sites are also found in Baluchistan and Sind. Technologically, the microliths of India are different from those of the Western Asia as well as those of the Chalcolithic Age. The microliths of India of Mesolihic Age are not made by the Crested Ridge Technique as shown conclusively by Langhnaj, Sanganakallu and Bagor. Besides these blades are invariably thinner and more symmetrical and usually longer than the microlithic blades.

INDIGENOUS

These microliths might have evolved from the earlier Blade and Burin industry, or from Series II, or Middle Palaeolithic tool complex, but nowhere is scuh a definite evolution available stratigraphically. The Kurnool evidence is not from one stratified site, but a typical grouping of the collection from a number of sites. But one can trace the development of the form and techniques, such as tools on blades removed by pressure technique in the Middle and Upper Palaeolithic Cultures within India. Very often, there is also no change in the earlier and later cultures. This has been demonstrated by a small excavation at Sanganakallu[1] where macro-lunates made on quartz occurred in layer 2, whereas the sticky soil yielded microliths also in quartz. Thus a natural development from Middle and Upper Palaeolithic Cultures to the Mesolithic can be demonstrated.

Microliths were not only employed by the hunting and food producing Mesolithic people, but were common also among the food producing communities and urban societies. The reason was that there was a short supply of copper and bronze, and these metals were used only by the rich. The common people continued the use of microliths. There was a marked difference between the tool typology of the hunting-food gathering communities on the one hand, and the urban and village communities on the other. The relationship between the Mesolithic Stone Industries and the Chacolithic-Neolithic Blade Industries in the different regions, is a problem to be investigated.

1. *SPPIP*, p. 275.

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CHAPTER VIII

NEOLITHIC CULTURE
(*C.* 4000B.C.—1000 B.C.)

Neolithic Culture denotes technological and economic changes in society. Technologically, it designates the grinding and polishing of stones, and economically, the transition from food gathering to food production. In addition, man had begun to domesticate animals like the cow or ox, sheep or goat, pigs and dog. He also made pottery.[1] All these singly or collectively imply that man lived at a definite place. He no longer remained a hunter moving from place to place in small groups, but had an organized community or social life. Thus, he ceased to be a savage or barbarian.

V.D. KRISHNASWAMI[2] has tried to give a picture of the neolithic pattern of India. While doing so he has divided the existing data into four neolithic provinces, A,B, C and D. He was, however, not able to distinguish between the Neolithic and the Chalcolithic Culture and wrongly included the Chalcolithic Cultures of Central and Western India in Neolithic Culture. H.D. SANKALIA[3] proposes that it is not the occurrence of a few copper or bronze objects, the number of which has generally been very small, but the knowledge of smelting copper that is important in attributing the culture Chalcolithic otherwise it is Neolithic. According to V.N. MISHRA[4], economy rather than technology is the diagnostic trait of the Neolithic. In this way, he also includes these Chalcolithic Cultures in Neolithic Culture. He is of the opinion that objects of copper did not change its economy. These views do not seem to be correct, for one single copper object is sufficient to classify the culture as Chalcolithic. It means diffusion, and it breaks the isolation. It increases production, and replaces stone axes. Whatever by the case, it is certain that in a true neolithic stage, knowledge of metal was not known.

Though traditionally Neolithic Culture was characterised by the use of ground stone axes, now more important criteria are used e.g., the domestication of plants and animals. Many of the Microlithic Cultures too will have to be included in this phase only.

1. Even the knowledge of pottery is not now regarded as an essential pre-requisite. For at Jarmo, Jericho and Haeilar in Iraq, Palestine and Turkey respectively, pre-pottery Neolithic Cultures have been unearthed.
2. *AI*, No. 16, p. 26
3. *SPPIP*, p. 280.
4. *IP*, p. 93.

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The salt lakes of north Rajasthan have yielded pollen evidence that in *c.* 7000 B.C., the climate was relatively humid. There was a large scale burning of forests accompanied by the occurrence of cerelia pollen. All these data may indicate a beginning of agriculture. But no correlation with archaeological evidence exists so far. Koldihwa, near Allahabad with its dates going back to *c.* 6000 B.C., is another promising site to look for the beginning of agriculture.[1]

Inspite of the common characteristics as stated above, there are regional peculiarities in Neolithic Cultures because of local environments and different influences. A strict regional and chronological treatment is not possible. The probability of simultaneous or contemporary existence and overlapping of other cultures or certain other cultural traits are noticed. Taking into consideration regional characteristics, Indian Neolithic Culture may be divided into three divisions —(1) Northern Neolithic Culture, (2) Southern Neolithic Culture and (3) Eastern Neolithic Culture.

NORTHERN NEOLITHIC CULTURE

The Northern Neolithic Culture is represented at sites of Burzahom, Gofkral and Martand in Kashmir. It has certain distinct characteristics such as pit-dwellings, pottery and ground stone and bone tools which distinguish it from the other Neolithic Cultures of India. There are two phases within the Neolithic occupation.[2]

In the earliest phase called Period I, the inhabitants lived in pit-dwellings which appear to be irregular in shape, not exactly round, oval, square or rectangular. So far sixteen pits were cut out into Karewa silt terrace. These were narrow at the top, wide at the base with a flat floor and side walls occasionally plastered with mud.[3] Evidence of landing steps and niches in the sides of the pit and deposits of ash, etc., on the pit-floors confirms their use for dwelling purposes. The traces of post-holes along the edge of the pits suggest the existence of timber super-structure. Their way of life seems to be primitive. Conical but irregularly dressed leaning stones[4] found in three pits of Phase I as well as in a burial of the Megalithic period II might have some religious significance. Besides polished stone implements, they made bone tools including awls, needles, points, chisels, harpoons etc. Pottery was hand-made, and showed mat impressions on the underside of the base.

In the succeeding phase, pit-dwellings were abandoned, and structures of mud and mud bricks were built on the ground with plastered floors, often coated with red ochre. These houses were provided with hearths and grounding stones with mullers. A new ceramic with black burnished surface made its appearance. Another innovation was the use of the potter's wheel. An almost complete globular vessel of a fine red ware with parallel grooves on the belly and a large painting of a bucranian bull head in black on it was found at Burzahom. This bull head deity

1. *Physics News*, Vol. 6, No. 4, December 1975, p. 4.
2. *I.A.R., 1960-61*, p. 11.
3. *I.A.R., 1961-62*, p. 19.
4. *Ibid.*, p. 17.

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painting has also been recovered from Gumla and Kot Diji. Polished stone axes and bone tools began to be used in large number. The knowledge of metallurgy seems to have been acquired towards the close of this phase because only one copper head was acquired.

Various kinds of pots and pans as well as different kinds of tools, implements and weapons in stone and bone throw light on the manifold needs and life of these people. There is no positive evidence for the cereals. The curious 'harvesters' (stone knives) and the ringstones or mace-heads imply the knowledge of husbandry. The timber for the houses and furniture could have been dressed with stone adzes, cut with axes and polished with scrappers. The bone industry suggests that hunting had a prominent place. The clothing, which was largely of leather, must have been cut with flake knives and stitched with needles and bodkins. Some engraved stones in a rectangular structure depict a hunting scene.

From the available evidence, it is clear that burial of both man and animal was practised. Among human beings, the articulate method was in vogue in comparison with fractional. Both extended articulated skeletons and partial viz. selected bones of human beings have been found. In some graves, domesticated animals like dog and goat or their bones were often deposited along with human skeltal remains. Instances of trepanning the skull as noticed at Kalibangan and Lothal, suggestive perhaps of their magico-religious beliefs, are also found.[1] Animal burial also both in articulate and fractional form was practised. The animals generally represented in burials are dog, wolf and ibex. One of the burials contained skeletal remains belonging to five wild dogs and antler's horn. Both human and animal burials were situated in the habitation area.

The C-14 dates indicate a time bracket for this culture of *c.* 2400—1400 B.C.[1] This dating may be further confirmed from other sources. At Burzahom, a complete globular vessel with painting of a bull head was found. This very motif is noticed painted on a vessel belonging to Kot Diji and Gumla in pre-Harappan period. Such a horned deity was worshipped in the third cultural period at Hissar.

The Neolithic Culture of North China is characterised by pit dwellings, perforated knife, dog burials and bone industry. As these are also the distinct features of the Neolithic Culture of Kashmir. Allchins[3] and B.K. THAPAR[4] advocate that this culture was derived from North China. Both of them do not explain the origin of the polished stone tools in Kashmir which constitute the principal diagnostic trait of the Neolithic Culture. On the other hand, V.D. KRISHNASWAMI[5] thinks that the Polished Stone Axes in Kashmir can be attributed to a Western influence from the Zhob valley in Baluchistan and the Iranian uplands where a pre-Harappa Neolithic Culture is found. During the course of its existence, it might have come into contact with Hissar III culture of Iran or the pre-Harappan/Harappan of Kot Diji and

1. *I.A.R. 1962-63.*
2. *Physics News*, Vol. 6, No. 4, December 1975, p. 5.
3. Allchin, B. and F.R., *The Birth of Indian Civilization*, p. 160.
4. *IP*, p. 87.
5. *AI*, No. 16.

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Gumla as well as Lothal. It does contain a pointed-butt axe, so that one cannot rule out completely the southern affinity.[1]

SOUTHERN NEOLITHIC CULTURE

Among the Neolithic sites of south India, the important excavated sites are Brahmagiri, Sanganakallu, Piklihal, Maski, Nagarjunakonda, Utnur, T.Narsipur and Tekkalkota. The earliest manifestation of this culture is seen at Sanganakallu which was dug by B. SUBBARAO.[2] Phase I is characterised by heavily patinated flakes of trap and sandstone associated with a crude microlithic industry of quartz and chert, without any evidence of pottery. The succeeding Phase II shows a continuous occupation by the highly developed neolithic culture, divisible into two sub-phases on the evidence of associated pottery. Polished stone implements comprising axes, adzes, pounders, chisels, etc., were found. WHEELER[3] dug at Brahmagiri. Period I, a stone-axe culture, is divisible into sub-periods I A and I B. Period I is characterised by polished pointed-butt axes of trap-rock. The axes are associated with microliths of jasper, flint, agate, opal and rock crystal. The pottery is hand-made, mostly of coarse grey fabric, in both the sub-periods of Period I. At Nagarjunakonda[4] also lies a neolithic site with polished stone axes in different stages of manufacture in association with the typical neolithic burnished grey and reddish brown wares. THAPAR[5] exposed at Maski in the Period I the material showing the essential neolithic economy of the culture.

ALLCHIN'S[6] work at Piklihal and SESHADRI'S[7] at T. Narasipur are also important. The findings at Piklihal are significant. On the basis of technique, colour, slip, dressing, nature of the clay, method used in shaping and decorating, ALLCHIN has given five groups of pottery. He also classifies the stone tools under five heads. In addition to ground stone tools, blade tools also formed an integral part of the neolithic stage in this region. At T. Narsipur, Period I is distinguished by the typical neolithic pottery, notably a thick burnished greyware.

CHARACTERISTICS

The pointed-butt polished axe seems to be the characteristic of a Neolithic Culture found in south India. At Sanganakallu, Brahmagiri and Piklihal, blade tools also formed an integral part of this culture. They are mostly on trappoid or basaltic rock. Bone tools were also used.

The ceremic is characterised by a dominant hand-made dull grey ware. The vessels-pottery at Piklihal, Sanganakallu and Brahmagiri, were all hand-made. Technologically, some five varieties are distinguished at Piklihal, three or four Sanganakallu, three at Brahmagiri and likewise at Maski. At the last mentioned place,

1. *I.A.R., 1961-62*, p. 21.
2. *Stone Age Cultures of Bellary*, Poona, 1948, p. 5.
3. *AI*, No. 4, p. 222.
4. *AI*, No. 14, p.
5. *AI*, No. 13, p. 10.
6. *Andhra Pradesh Government Archaeologicel Series*, No. 1.
7. *I.A.R., 1958-59*, p. 33.

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the wheel-made pottery seemed to be in a majority and it seems to be a later development.

These Neolithic people seem to have become acquainted with cattle rearing and agriculture. The cattle rearing is demonstrated by the remains of the domestic animals such as buffalo, sheep and goat. Up till now, no grains or their impressions have been discovered, but the existence of concave-shaped saddle querns and several rubbers or pounders suggest that some kind of grain was coarsely crushed before eating. This is also inferred from the worn out teeth of two intact skeletons and a human jaw.

These people lived in huts or houses. The huts were raised on round wooden posts—of which remains have been discovered at Brahmagiri, Maski and Piklihal. The excavation at Piklihal reveals that the square or ractangular exteriors were enlosed with a bamboo matting, which was covered with mud, and the floors were plastered with clay and dung, and perhaps also or alternatively with lime, lumps of which were found in layer 8 of site VI.[1] These were repeatedly raised or repaired. Sometimes the alignment of the hut was changed. These earliest huts or simple floors might have been made just in front of the sloping surface of a rock or cave.[2]

Terracotta figurines of humped bull have been obtained from the Lower Neolithic levels. These are hand-made. While the hump and nose are indicated by small additions, the foreleg and probably also the rear formed a single cylinder.[3] This suggests that these animals played an important part in the economic life of the people. They might have also served some religious purpose. A human torso[4] of grey black clay with reddish slip, from the surface, is also assigned to this period. While it is definitely male, but whether in addition it is also *ardhanārī* cannot be said with certainty.

The Neolithic layers also yielded three complete skeletons, one considerably crushed. These respectively belong to a child, a female and a male, the first being the earliest. The child was lying on its side, while the female and the male lay extended on their back, with the female's head inclined to the right. The female and male skulls appear to be mesocephalic and slightly prognathous. The teeth were well preserved, but considerably worn out in the case of the female and fairly in those of the male. ANANTHAKRISHNA AYER,[5] who studied these three skeletons, does not seem to emphasize the features which struck the eye such as prognathism. He regards them as "remains of a tall, sturdy people with large cranial capacity and a variable headform" and probably "the ancestors of a major element of the present mixed so-called Dravidian inhabitants of the Deccan and Southern India."

CHRONOLOGY

It is satisfying to note a reasonably large number of neolithic sites[6] have been C^{14} dated *e.g.* Kodekal (Andhra), Untur (Andhra), Palavoy (Andhra), Terdal

1. *Andhra Pradesh Government Archaeological Series* No. 1, p. 22.
2. *Ibid.*, p. 23.
3. *Ibid.*, pp. 78-79.
4. *Ibid*, p. 81.
5. *Ibid.*, p. 81.
6. D.P. Agrawal, *Karnataka Archaeology—A chronological Reappraisal* (Cyclostyled copy)

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(Mysore), Tekkalakotta (Mysore), Hallur (Mysore) T. Narsipur (Mysore) and Paiyamapallai (TamilNadu). The maximum time spread of the C^{14} dates of the Southern Neolithic Culture is *c.* 2500-1000 B.C. During this time, a pastoral-*cum*-agricultural people had settled in this region dotted with numerous granite hills. They preferred to live in and around the hills and rocks overlooking the plains. The climate at that time was dry but perhaps the region received a little more rain and that too more regularly than at present. And so the hills were comparatively thickly wooded.

This time assigned to the Southern Neolithic Culture is obviously overlapping with that of the Harappan Culture. Was there any contact between the two cultures? RAO thinks that perhaps the steatite beads were supplied by the Southern Neolithic people to the Harappans. He even postulated that the long blade industries *e.g.* at Bijapur might have been the factory sites for the supply to the Harappans.

ORIGIN

South East Asia

Nothing can definitely said about the origin of the Neolithic Culture of south India. WHEELER[1] tentatively suggested that it was a movement from north-east to south-east. He further suggested that the axes might have been derived via China from Central Asia. The all-eastern origin was also suggested by WORMAN on typological grounds. This is further supported by HAIMENDORF's hypothesis that a late Neolithic civilization with affinities associated with the same form of Austro-Asiatic tongue, permeated the older population of the Deccan. A further co-relation is also shown in the affinity of the living megalithic culture of Assam with Orissa and Bastar.[2]

Actually, the eastern complex is quite different from that of the southern which is characterized only by the pointed butt axe and its variations. Besides, these are two different Neolithic provinces. A southern stone axe concentrated in the Karnataka and an eastern one embracing Orissa, Bihar, Bengal and Assam. Climatically also, these are different. The Karnataka is in arid region while the eastern area is within the heavy monsoon zone.

Iranian or West Asia Origin

ALLCHIN[3] advocates Iranian origin on these grounds : (i) the close similarity in potting technique between Shah Tepe and Piklihal, (ii) the occurrence of grey ware at both the sites, (iii) certain pottery types—spouted and channel-spouted pots, and perforated vessels; (iv) the use of tabular basalt at Shah Tepe and also at Piklihal for making axes. H.D. SANKALIA[4] holds that this culture came to India in the

1. *Early India and Pakistan*, p. 89.
2. *AI*, No. 16.
3. *Andhra Pradesh Government Archaeological Series*, No. 1.
4. *SPPIP.*

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wake of a folk movement either *via* Southern Baluchistan through Seistan or else eastwards *via* Arachosia into the Indus Valley. Owing to contact with the Indus civilization, they adopted the bull as an important part of their economy, and transplanted it into Northern Karnataka. In this region, they were once again reminded of their art of making stone axes by the plentiful raw material around them. It is also held on the slender evidence of the three skulls that these people from Iran or Central Asia were either of Dravidoid stock who might have introduced the Dravidian languages or a movement connected with the first wave of the Indo-Europeans. V.N. MISRA[1] also believes that this culture originated from the Neolithic culture which first developed in West Asia in about 7000 B.C. According to him, all the traits at all sites appear in their full fledged form, and there is not a shred of evidence to indicate the faint beginnings and patient growth of any of them at any site.

Indigenous

Both V.D. KRISHNASWAMI[2] and B.K. THAPAR[3] are of opinion that the Southern Neolithic Culture is indigenous. V.D. KRISHNASWAMI holds that the origin of the polished axe culture of the Karnataka should not be looked for in the Indus valley or in West Asia and Iran as conjectured by ALLCHIN. It is a local industry developed on the soil, as it emanates from a crude post-palaeolithic (Microlithic) flake-industry of the hunting stage when axes were rare. This, in turn, develops into a rich axe-industry, absorbing dominant parallel-sided blade industry coming from the proto-historic culture of Central and Western India. The Southern Neolithic Culture with its characteristic Pointed-Butt Axe industry and the Burnished Grey Ware seems to have originated in the region itself. An essential trait of this culture was a microlithic and blade industry. It is further argued by A. GHOSH and B.B. LAL[4] that the indigenous origin does not mean that basic traits of food production or grinding stone tools were invented in south India for a second time, independent of West Asian Cultures. It rather means that the format of the culture developed independently.

EASTERN NEOLITHIC CULTURE

Most of the tools of the Eastern Neolithic Culture are found from the surface but some are even from the excavated sites. Ground tools of stone and bone and pottery in very small quantities are the characteristics of the Neolithic Culture of this region. This Eastern Indian Neolithic Complex may be grouped under two heads—(1) Assam Culture Complex and (2) Bihar-Bengal Orissa Complex.

ASSAM CULTURE COMPLEX

Most of the tools in Assam have been collected from the surface but some from the excavated site of Daojali Hading. Technologically and typologically, this small

1. IP, pp. 94-98.
2. *AI*, No. 16.
3. *IP*, pp. 87-92.
4. *Ibid.*

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stratified collection is indeed representative of the various regional types. This excavation has given for the first time stratigraphical occurrence of ground or polished stone axes and also pottery in a fairly deep deposit. Nine ground stone celts were also recovered from the excavations conducted from some other site known as Sarataru,[1] a hamlet situated at 25 Km south-east of Gauhati. These are made on slate of grey to black colour and sandstone of cream to buff colour. The stone tools can be classified into two following types :

(A) Shouldered celts-7

(B) Round-butted axes-2.

Numerous pot-sherds were recovered from the excavations and significantly in association with stone axes. Pottery is hand-made. On the exterior, the ceramic is sometimes decorated with cord impressions or basket impressions.

The fact, that these stone tools from the two excavated sites are in no way different from those collected from the surface at numerous sites in Assam, proves that in this part of India man had passed through a stage of cultural development in which these ground or polished stone tools were used at a considerably early period. DANI[2] has tried to study the Neolithic Culture of Assam on the regional basis as each group of tools of a particular region shows a distinct kinship in material and form. On the other hand, T.C. SHARMA[3] gave the scientific classification of the entire Assamese collection typologically and technologically taking into consideration the sub-marginal features, and the part played by the raw material. Having discussed the nature of the tools, he discussed their region wise distribution.

Tools

The stone implements belonging to the Neolithic period have been grouped into four groups as follow:-

(i) Edge-ground,

(ii) Pecked and ground,

(iii) Fully ground,

(iv) Miscellaneous.

Each one is further divisible into sub-types and varieties according to form and the cross-section. The group (i) has four main types, group (ii) has eight and group (iii) has eleven. In addition, there are Grooved Hammers, Belted or Notched Pebble Hammers, Grinding Slabs, Polishing and Sharpening Stones and Flat and Concave Mealing Stones. The tool types possessing a kind of homogeneity show regional variation or specialization because of the raw material used. The chief material in the Garo Hills is dolerite, in the Naga Hills greenstone, and in the North Cachar and Kamarup Districts a variety of indurated shale for edge ground tools and sandstone for other tools. The technique also varies from region to region. In the Naga Hills, pecking and grinding is dominant while in the North Cachar Hills, Garo Hills and parts of Assam, chipping and partial or overall grin-

1. *Man and Environment*, Vol. I, 1977, pp. 39-43.
2. *Prehistory and Protohistory of Eastern India.*
3. *Prehistoric Archaeology of Assam-A Study of Neolithic Culture.*

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ding are common. Two main types : (1) the Small Celts and (2) the Tanged Celts are found in the North Cachar Hills. Only chipped and fully Ground tools occur in the Garo Hills. The Tanged-axe and the Wedge-blade are found specially in the Naga Hills Zone. The Grooved Hammerstones found are peculiar to this zone. The Faceted tool and Shouldered tool remained predominant types in almost all the zones. Pebbles and prepared hammerstones were used for flaking and portable sandstone blocks for grinding. A few pebble hammers are ground or polished for hafting.

Pottery

Of three classes of Neolithic Pottery Cord-impressed is the most numerous. The finds of Daojali Hading consisted of pottery and stone implements. These were so mixed up that a cultural division between pottery using and non-pottery-using periods is not possible.

Origin

From the study of these different tools, it appears that influences from the East as well as from the West seem to have been at work in the origin of the Neolithic Culture of Assam. DANI concludes that the Neolithic Culture of Assam was derived from South East Asia and China. The pecking technique of tools in the Naga hills seems to have been introduced from China. The Pointed Butt Axes of the Naga Hills, being associated with Shouldered Axes, are derived from East Asia, and not from south India. Though this is likely, the very latest finds from the Garo Hills of stone tools of various ages show that the contact with or influence from Peninsular India need not be excluded. The influence from south India or from Western Asia cannot be proved in the absence of reliable evidence, though the surface collections from Chota Nagpur and the Darjeeling area have given four comparable types. It is possible that these regions will prove to be contact zones with the Peninsular Neolithic on the one hand and Eastern Asia on the other. The most numerous Cord-Impressed pottery of Assam prevalent in Eastern Asia shows distinct influence from this region.

Date

No absolute date of this Neolithic Culture of Assam has been fixed by DANI. T.C. SHARMA has prepared the following sequence beginning from the bottom.

(1) Hoabinhian
(2) Early Neolithic
(3) Neolithic
(4) Aneolithic.

While stages (1) and (2) have not been dated, the stage (3), Late Neolithic has been placed in about 2000 B.C. H.D. SANKALIA[1] assigns 4000 B.C. to 2000 B.C. to the Neolithic Culture of Assam (Meghalaya).

1. *SPPIP*, p. 15.

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CHESTER GORMAN[1] on the basis of latest evidence from the mainland sites in South East Asia, including his own excavations in the Spirit Cave and at Non Nok Tha and Ban Kao in Thailand, has shown that the initial date for the Hoabinhian occupation culture might be placed in the late Pleistocene about 13000 to 14000 B.P. on the basis of four C-14 dates. The cultural and other remains continue until about 3500 to 3000 B.C. During this period, there was a shift from upland to lowland settlement, and from food gathering to food production. Identical situation is found in Meghalaya (Garo Hills) and other hilly areas, while Assam proper—Kamrup or Brahmaputra valley—is a plain country. So here we can expect a similar transition from hunting-fishing to food production. Even in Australia ground stone tools—axes of Neolithic period have been found in stratified deposits which have been dated to about 20000 B.C.[2] Thus, on further evidence in future, there is a possibility of placing the date of Neolithic Culture of Assam even earlier.

BENGAL-BIHAR-ORISSA CULTURE COMPLEX

The Neolithic Culture of Bengal, Bihar and Orissa is represented by tools, pottery and cultivation of cereals. Most of these tools are found from the surface. Geographically, this area may be divided into three groups—(1) Chittagong region, south of the Khasi, Garo and Naga Hills, (2) Sub-Himalayan Zone, and (3) Chota Nagpur Zone. The tools found in Chittagong region are of the Faceted variety of Assam. The tool-varieties of the Sub-Himalayan Zone include the Faceted tool Rounded—but axe and Wedge-shaped axe, as in Assam, besides the chisel and hammerstone. Many Neolithic tools have been discovered in Chota Nagpur Zone.

The tool types represented are Axe, Wedge, Chisel, perforated tool, Shouldered hoe and Hammerstone. Three different techniques—chipping, pecking or hammering and grinding have been used, either singly or in combination to produce these tools. These tools may be placed under two groups. The group I has Indian types while group II shows a mixture of foreign types well-known in South East Asia. There is no stratigraphical evidence but the Group I is earlier than Group II. Because of the similar tool types during this period, this region remained culturally related to Assam.

There are stratified neolithic sites also in this region. M.N. DESHPANDE has produced stratified data by his excavation at Tamluk in Midnapur, District West Bengal. Here the lowest level has yielded neolithic celts (facetted tool types) and an ill-fired pottery. Recent excavation at Kuchai,[3] District Mayurbhanj in Orissa has however provided the much needed substance to the Eastern Neolithic Culture. At this place, a coarse grit tempered red ware, sometimes also slipped and showing incised or finger-tip decoration was found in association with Polished stone implements. The latter comprised Rounded-butt Axe, Faceted Hoes, Chisels, Pounders and fragmentary examples of a Mace-head and a grinding stone. No

1. "The Hoabinhian and after....., *World Archaeology*, February, 1971, pp. 300-320.
2. *SPPIP*, p. 298.
3. *IP*, pp. 91-92.

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shouldered hoe was found from the excavation although it has been reported from the area as a surface collection. There was no evidence for the use of metal. From the present limited evidence, it is rather difficult to reconstruct the economy of the Neolithic people of Orissa. The stone Axes would have been used for forest clearings with a view to farming while the existence of pounders, grinding-stones, etc., may imply acquaintance with husbandry.

Chirand[1] and Barudih are the neolithic sites of Bihar. Their culture is marked by ground stone and bone tools, shell ornaments and handmade pottery. A C-14 determination from the topmost level of the Neolithic culture at Chirand had given a date of 1650 B.C., but the lowest deposit might go back to 2500 B.C.

Unlike the other Neolithic cultures of India, the settlement of this Chirand culture is situated in the alluvial plain over the reddish silt. Other neolithic settlements are generally found on plateaus and hills. The earliest settlement rests under a thick debris of early historic town and is 3.5 m thick. The structures discovered were circular and about 2 m in diameter. They lay close to one another. Their floors were paved and the walls were made of clay or mud plastered over a bamboo screen from outside and inside. It is also thought that there were 'pit houses' with roof. The roofs were presumably conical and thatched. In one of the excavated trenches was noticed a cluster of ovens.

The inhabitants of Chirand used pots and pans. There were four main fabrics: (1) Red, (2) Pale and deep grey, (3) Black, and (4) Black and red. All these are said to be either handmade or made with the help of a turn-table. There are pots (globular) with wide, narrow and flared mouth, hemispherical bowls with stand, perforated bowl, spouted and lipped bowls and pots with long and short tubular spouts.

In India, Chirand is the only neolithic site where so many varied types of bone tools have been found. These include—picks, chisels with broad and narrow end, hammer and dagger, barcelt, shaft straightener, side and end scrapers, needle bodkin, awl and drill. There were also arrow heads, both tanged and socketed. As suitable raw material stone in large quantity was not easily available, people utilised the long bones and antler of animals they hunted or butchered. These different tools served the manifold needs of hunting, skinning, weaving, stitching and digging. The microliths also made on chert, chalcedony and silicious stones continued. If the blades predominate, and points and arrowheads are significantly represented, these people also like the southern Neolithic and Eastern Neolithic people depended for their daily household needs on lithic blades. What distinguished them from others is that they used bone tools in large number. For cutting vegetables (wild) and stalks of wild grasses, these microliths set in bone, wood or clay hafts were employed. A large number of ground stone artifacts including hammerstones and rubberstones were recovered. The only effective weapons of offense were bows and arrows tipped with stone and bone points and terracotta sting balls.

1. *JBRS*, LVI, 1970, pp. 1-35; *Puratattva*, No. 4, 1970-71, pp. 18-22.

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It seems that these people of Neolithic Culture at Chirand were acquainted with sort of cultivation of grains because among the debris occur charred grains of paddy husk, wheat and *mung*. As these are not found in large quantity, they do not seem to have played a major part in the economy of the people who depended mainly on hunting animals.

Some idea of the artistic activities of the people of Chirand can be had from the beautiful beads and pendants of semi-precious stones such as agate and carnelian which were locally available and of faience and steatite, both possibly imported. Among other ornaments were bangles of clay/terracotta and bones.

At other neolithic sites, terracotta figurines of animals like the bulls and birds have been found but at Chirand, terracotta figurines of snake have been recovered. Even at Gumla, Hathala and other excavated sites in North West Frontier, numerous terracotta figurines of serpent goddess of the Pre-Harappan times have been discovered. This proves the worship of the cult of snake at Chirand and other sites in such an early period.

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CHAPTER IX

PRE-HARAPPAN CULTURE
(*C.* 2700—2400 B.C.)

Pre-Harappan culture is one which precedes and sometimes also overlaps the Harappan culture. The striking feature of this culture is that it heralds some uniformity, and many new traits leading to the threshhold of urbanisation. Other peculiarities are noticed in the fortification wall, houses, pottery and other objects. As this culture is antecedent, of Harappa it is known as forerunner of Harappan culture. Stratigraphically, some of them underlie the Harappan culture.

EXTENT OF PRE-HARAPPAN CULTURE

Geographically, the area occupied by this Pre-Harappan culture is vast and may be divided into two regions—(1) Indo-Iranian borderlands and (2) Indian land. The Indo-Iranian borderlands of Baluchistan and Afghanistan with hills and valleys produced separate local village cultures though they share basic characteristics. Some of them gradually developed into urban centres. In India, the main Pre-Harappan sites are found in Sind, Punjab, Gujarat and North Rajasthan. The great tracts of alluvial land in the valleys of the Indus and its tributaries provided agricultural potentialities for the rise of great urban prosperous centres. The source of inspiration for this culture was West Asia and Iran through Indo-Iranian borderland of Baluchistan and Afghanistan which served as corridors for migration.

The material for study of the Pre-Harappan culture is obtained from two sources—(1) Surface of deserted settlements and (2) the excavated sites. The important excavated sites are Mundigak[1] in Afghanistan, Kili Ghul Mohammad,[2] Damb Saddat,[3] Periano Ghundai, Rana Ghundai,[4] Dabarkot,[5] Anjira, Siah Damb,[6] Nal, Nundara,[7] Shahi Tump and Kulli Mehi[8] in

1. Casal, Jean-Marie, *Fouilles de Mundigak* Paris, 1961.
2. Ehrich, R.W., *Chronologies in Old World Archaeology*, Chicago, 1965.
3. Fairservis, W.A., *Anthro. Papers, p.* Vol. 45, Pt. 2, New York.
4. Aurel Stein, MASI, No. 37, p. 62.
5. *Ibid.*
6. Beatrice de cardi, 'Excavations and Reconnaissance in Kalat', *West Pakistan Archaeology* No. 2, 1965.
7. H. Hargreaves, *Excavations in Baluchistan* 1925, Bampur Mound, Mastung and Sohr damb, Nal, MASI, No. 35 (1929).
8. Aurel Stein, *An Archaeological Tour in Gedrosia*, MASI, 43, pp. 104-118 and 154 respectively.

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Baluchistan; Amri,[1] Kot-Diji[2] Mohenjodaro and Gumla[3] in Sind; Harappa in Punjab; Kalibangan[4] in North Rajasthan and Lothal in Gujarat. The excavated material at these different sites is valuable for the study of the Pre-Harappan culture. The Pre-Harappan culture of these different regions have some common features though in some respects, it is different. What is designated or regarded as Pre-Harappan has been called "Early Harappan" by MOHAMMAD RAFIQUE MUGHAL[5] on the entire evidence of most of these sites.

DATE

It is not possible to place these Pre-Harappan Culture in absolute chronological framework. On the basis of Mesopotamian and Iranian parallels and C^{14} dating, attempts have been made for dating this culture. Kot-Diji I, Mundigak IV, Damb Sadaat II, Kulli and Amri II on archaeological evidence are ascribed to 2700—2400 B.C. Radiocarbon dates place Kot Diji to 2600—2200 B.C. Further south-east Kalibangan I has a C^{14} dated beginning in 2400 B.C. From both archaeological and radiocarbon dating evidence, it is evident that around 2400 B.C. pre-Harappan culture was in existence.[6] Whether it was partly contemporary to Mohenjodaro in early levels cannot be said at this stage.

BACKGROUND OF THE PRE-HARAPPAN CULTURE

It is necessary to know the background of these pre-Harappan culture for understanding its significance. Period I, the lowest of the four cultural phases at Kili Ghul Mohammed near Quetta in Baluchistan reveals pre-ceramic stages. The radiocarbon samples of this period have given dates of 3712 B.C. and 3688 B.C. The cultural date of this period indicate that the inhabitants had domestic sheep, goats and oxen. Their material equipment includes blades of chert, jasper or chalcedony, and a broken rubbing or grinding stone, but no metal objects. Awls or points of bone were also found, but no pottery was discovered.

Subsequently, there was the arrival of the new influence or people from the West. The development of individual pottery industries took place in mountain valleys of Baluchistan that justified them as cultures. In the beginning, the pottery was handmade. Even in Rana Ghundai I, Sur Jangal I,[7] Loralai I, Mundigak I and other Quetta and Zhob sites, people used handmade pottery. Kili Ghul Mohammed II

1. Casal, Jean-Marie, *Fouilles D'Amri*, Vols. I and II, Paris, 1964.
2. Khan, F.A., Excavations at Kot Diji, *Pakistan Archaeology*, No. 2, 1965, p. 45.
3. Dani, A., *Ancient Pakistan*, Vol. V, 1970-1971.
4. Ghosh, A., *Indian Prehistory*, pp. 113-156; *I.A.R., 1962-63* to *1965-66*.
5. Mughal, Mohammed Rafique: 'The Early Harappan period in the Greater Indus Valley and Northern Baluchistan (*C* 3000-2400 B.C.), *Ann. Arbor, 1971*, p. 58.
6. *The Copper Bronze Age in India*, pp. 102-104
7. A. Fairservis, A., *Archaeological Survey in the Zhob and Loralai Districts, West Pakistan* in Vol. 47. Part 2, *1959*.

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was supposed to be characterized by handmade pottery according to CHILDE, but the pottery graphs showed ten wheel-made types out of a total of twelve.

Gradually, wheel turned pottery was introduced. Wheel-made pottery appears in Mundigak I_2. The distinctive pottery motifs are dot tipped hanging triangles and dot-tipped six or eight-armed star. Decorated panel pattern in bichrome ware is introduced in this area for the first time in Mundigak I. Specialised surface treatment, basket marked ware and wet ware are other distinctive features. Some characteristic painted designs are similar to those of Kili Ghul Mohammed II and Anjira I. Bone awls, alabaster vases, stone blades and beads in steatite, lapis lazuli and frit, all make their appearance during this period at Mundigak I. Kili Ghul Mohammad II and III had seventeen wheel-made pottery types out of the total twenty-two. Mundigak I_2 and Kili Ghul Mohammad II marked the beginning of copper also.

From the remains of the earliest settlements discovered at Kili Ghul Mohammad, Anjira, Shiah-damb and Rana Ghundai no trace of any structure was noticed. This indicates that people were in nomadic stage. At Rana Ghundai, animal bones at the lowest level included those of sheep, goat, ass and Indian cattle (*Bos Indicus*).

All these finds are said to have affinities mostly with Sialk III 4-5 and Hissar I B and I C, and these are ascribed to period 3300—3000 B.C. The sites with these finds are apparently confined to Afghanistan, and north and Central Baluchistan.

The remains of the permanent settlements discovered in the excavations of different sites prove the emergence of settled villages after 3000 B.C. At the end of period I, Kili Ghul Mohammad I people began to construct houses of mud brick or hard packed clays.[1] In period II at Mundigak, the houses were well constructed, and the settlement was notably more compact than in the earlier period. At Damb Sadaat too, there was noticeable advance in the scale of the houses, but mud brick was still favoured, and hearths and bread ovens were found. At Amri IA no structures but only burial jars are noticed. Most of them were handmade. I-B period contained two phases of mud brick buildings. I D consisted of no less than four structural phases. Houses were built of both mud brick and stone. The earliest layer at Gumla had large shallow circular pits with a clay border (called community ovens), animal bones and microliths. The rubble masonry set in mud mortar and the squared and roughly bonded stone blocks are found at Kulli, Mehi, Nundara and many other sites. The clay models of houses found at Damb Sadaat are just compartmented clay boxes, as the painted designs on them are similar to those on Quetta ware, but square openings may be meant to represent windows. These house models give an idea of the houses in third Millennium B.C.

The professions of cattle breeding and agriculture contributed to the settled life and formation of villages. The cultural date of this period indicate that the inhabitants had domestic sheep, goats and oxen. The proliferation of humped bull motifs at Mundigak III, Damb Sadaat III, Kulli. Amri and Nal may signify the recognition of cattle power for transport and agriculture. The presence of a number

1. *The Birth of Indian Civilization*, p. 103.

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of grinding slabs and stone balls perhaps used as corn crushers attests the preparation of cereals at Damb-Sadaat. Some saddle querns from Kulli indicate that corn was ground and therefore grown.

Local industries provided employment to the people and led to the growth and development of villages. By the invention of wheel, the industry of pottery became very popular. Multi-coloured pottery began to be manufactured during this period. Potteries of different localities had their own characteristics. Kili Ghul Mohammad had Black-on-Red Slip Ware (radiating lines ending in solid dish), Kachi-beg Black-on-Buff Ware (Semi-circles in horizontals with the intervening areas cross-hatched), Quetta ware (cross-hatched triangles, opposed triangles, double row of needles and fish), Jangal Coarse (radiating lines ending in solid disks) and Painted (Scales) ware and Sur Jangal III (opposed triangles).

DALES notes that the Polychrome decoration was confined to northern uplands (e.g. Nal), whereas bichrome was concentrated in southern foothills and near the lower Indus plain (e.g. Amri). But still the shapes and some motifs are common between the two styles. It is interesting to note that polychrome and bichrome traditions occurred together in Mundigak III. Later on, they split. The Nal people with the polychrome tradition started practising a mixed farming and animal husbandry in the uplands. But those who descended to the foothills and the Indus plain area, e.g. the Amrians, with the bichrome tradition eventually contributed to the Indus civilization.

Regarding the pottery of Baluchistan, PIGGOTT holds that Zhob cultures of the north were Red Ware cultures, and the Buff ware cultures were confined to the South. Subsequent field work has shown that this distinction is no longer tenable in Baluchistan where Red wares now extend southwards through Central Kalat. Buff wares are found in the Quetta region, and identical designs adorn both red and buff wares on a number of sites.

The advent of metal is an important event in the history of mankind. It has distinct advantages over stone, bone or wood for making implements. These were used for agriculture and other purposes. It led to the growth of civilization. Tal-i-Ibis in Mashiz valley (Kiram Range) in Iran is said to be one of the earliest smelting centres. From Iran, the techniques of copper spread to Afghanistan and Baluchistan. Mundigak in Afghanistan offers a complete sequence of metallurgical development. Copper appears in Period I as evidenced by the presence of elbowed blades and an awl. In period II 3, appear spearheads, internally vaulted spiral-headed pin and eyed needle. In period III 6, tin-alloying also is reported. Period III is relatively richer in copper. The tool repertoire includes shaft holed axe, adze, spearhead without midrib and a sickle blade. Few fragments of copper were found in Damb Sadaat II and III. From Kulli, we get a mirror, pin and flan axe. From Nundara, only a bangle is reported. At Nal, a good number of metal tools were recovered from the cemetery and D, and F areas. The types include knives, blades, bangles, axes, etc.

Stamp seals with concentric geometric designs in stone and bone occur in this phase; but none in metal. The occurrence of female and bull figurines is one of the characteristics of this phase. By comparing the findings of this phase with Hissar II-A and Sialk III, it may be ascribed to 3000–2700 B.C.

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FORTIFIED SETTLEMENT OF TOWN

After 2700 B.C., a transition from village to fortified settlement of town was taking place as evidenced from some of the excavated pre-Harappan sites. At Mundigak, there were massive defensive walls and square bastions of sundried bricks in Period IV. In this, have been exposed the traces of a palace and a temple. Even in Amri II, traces of rampart were met with. The pre-Harappan fortified settlements have been found at Tharo and Kohtras Buthi. At Kot Diji, there was citadel and outer city. This pre-Harappan settlement may be called a city because it has a defensive wall, well-aligned streets and houses. Stone has been used in the foundation of house walls and defence wall round the settlement. For the construction of the upper portion of the walls, mud bricks were used. In the defence wall, bastions were constructed at the interval. The extent height of the wall at some places is 12 to 14 feet and so far the maximum length exposed is 108 feet.

At Kalibangan, the pre-Harappan settlement was enclosed by a mud-brick fortification. Houses were built of mud-bricks sometimes separated by lanes. A pre-Harappan baked brick drain with two courses was also found. A brick rampart of a pre-Harappan settlement was found at Harappa itself. Further excavations at great citadel found at Harappa revealed a brick walled settlement analogous to those of Kalibangan.

POTTERY

The pre-Harappan pottery is different from the Harappan one. It is pinkish, thinner and not so well baked. The pottery fabrics and forms show a close affinity with the early Baluchi and Iranian pottery. This type of pottery took the place of multicoloured painted pottery prevalent all over from Afghanistan to the Indus. The incised and stone gray ware vessels were ubiquitous now. Naturalistic motifs dominated the geometric ones; the bull motif became widely popular. Inspite of these general features. some regions are known to have peculiar pottery.

The pre-Harappan pottery of Kalibangan is wheel-made. Its distinguishing feature is that it is generally light and thin in fabric, and red to pinkish in colour and is painted in black, combined at times with white, over a slipless dull surface, mainly on the neck and shoulder. The designs are both geometrical and naturalistic. Vessels with rusticated lower parts, basins with designs obtusely incised or finally combed on the interior and vases with cord impression on the exterior are other features. Some six fabrics have been distinguished in this pottery.

A. GHOSH named the pre-Harappan pottery of Kalibangan as Sothi after the name of this site, He compared this ware in some details with the Zhob (Periano Ghundai) Quetta, Afghanistan and Central Bluchi industries. It seems to have a wider distribution than any other pre-Harappan ware known so far. This pottery is analogous with the pre-defence pottery of Harappa and Mohenjodaro, and also with that of the earlier period of Kot Diji.

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In 1968, the excavations at Mitathal provided stratigraphical evidence for the evolution of pre-historic cultures of Sarasvati basin from pre-Harappan to late Harappan times. Mitathal I provided typological ceramic similarities with Kalibangan I, but the two also differed. In the former, the ware is rather sturdy, shapes and painted designs scarce and the use of white pigment absent on painted designs. Siswal, where both Kalibangan I and Mitathal I wares were found on the surface, is located in Dṛishadvatī Valley at a distance of 26 Km from Hissar in Haryana State. On the basis of the pottery recovered from the excavations, the cultural sequence of the site is divided into two phases, A and B. Phase A confined to layers (2) to (5) is characterised by the presence of Kalibangan I ware including white paintings in addition to black over red and incised troughs. Phase B is distinguished by more evolved, rather sturdy, shapes, paucity of types and designs and the absence of use of white pigment.[1]

The pre-Harappan pottery at Amri is thin, and it is red or pink. Decorations became much richer and right from the beginning though animal forms and the typical fish scale design appear later. The dish-on-stand is said to occur in the middle phases but not at the start of the occupation.

The Kot Diji pottery is fine, thin, of well-levigated clay, wheel-made and with a ground from pinkish to red. The bands were done in red, brown, sepia and a warm black over a cream slip. In the early stages of Kot Diji culture, mostly neckless and rimless forms prevail. In the later stages, necks develop; painted designs in black and white also appear. The motifs are bands, multiple loop and many lines to begin with, which later on develop into fish scales pattern.

The Micaceous Red Ware has been discovered in the lowest level at Lothal in Gujarat. In the pre-Harappan times, the Micaceous Red Ware People had already developed the bowl with the stud-handle and painted their vessels with a very fine brush. The designs included curvilinear patterns, zig zags, vegetable motifs and hatched diamond, the main ceramic forms being bowls, and jars with flaring rim. They also used a coarse grey ware decorated with incised patterns.

METAL

The development of metallurgy contributed to the urban making process. A few metal objects have been found at Mundigak, Nal and Mehi. Nal alone yielded eighteen copper artifacts including adzes, chisels and saws. From Damb Sadaat, a few copper fragments and a dagger were recovered. Kot Diji I gave only one bangle and Kalibangan I three objects. Stamp seals were also being made of copper indicating relative abundance of metal.

STONE OBJECTS

Small blades and points made out of chalcedony and jasper were discovered from the pre-Harappan sites. The long stone blades invariably used by the

1. *Puratattva*, No. 5, 1971-72, pp. 44-46.

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Harappans were far more developed than the smaller compound tools of their predecessors though technologically they were made on the same principle. These small blades and points served different purposes such as hunting, fishing and harvesting. Other objects of stone such as grinding stones, mills, pestles, polished balls and sling balls of the Kot Dijians during this period are said to be finer than those of the Harappans. So also are the terracotta cakes and cores of these Kot Dijians. Shar-i-Sokhta[1] (Seistan) was a manufacture centre for stone vases of alabaster, sandstone and potstone.

DRESS AND ORNAMENTS

Terracotta spindle whorls found at pre-Harappan Kot Diji and other such sites prove that they were used for spinning cotton. People wore cotton clothes. Beads and bangles served the purpose of ornaments. At Kalibangan, there are beads of steatite, shell, carnelian, terracotta and copper, but none of etched variety and of faience. The bangles are of terracotta, shell and copper. The ornaments of Kot Dijians were plain terracotta bangles and beads and sometimes painted. The discovery of a large number of beads at Shar-i-Sokhta (Seistan) and at Nal (Sohr Damb) suggests that there was a local bead making industry. There were bead-makers who manufactured these beads.

CULTIVATION OF LAND AND FOOD

The remarkable discovery of a ploughed field in pre-Harappan times at Kalibangan proves the use of plough for the cultivation of land. The plough and other such tools must have considerably increased the production of grains. Though we possess no idea of the charred grains as also of the animal bones, we may presume a mixed diet consisting of wheat, barley and other grains as well as animal food in which ox/cow, pig, deer and fish must have figured prominently.

TRADE AND COMMERCE

The surplus production of raw material and manufactured goods led to the development of commerce and trade. In these newly established towns, different craftsmen settled. The terracotta cakes and balls discovered at Kot Diji might have served the purpose of weights. Several seals, though not bearing writing of any pictograph discovered at Shar-i-Sokhta and other sites, were used for trade transaction. A terracotta cart-wheel with single-sided hub found at Kalibangan throws light on the means of transport and conveyance from one place to another.

TERRACOTTA FIGURINES AND RELIGION

A large number of terracotta figurines of bull and mother goddess have been discovered at Shar-i-Sokhta, Nal (Sohr-Damb), Kulli, Mehi, Periano Gundai, Dabar-

1. Tosi, Maurizio, "Excavation at Shahr-i-Sokhta", *East and West*, Vol. 18 (1968) and Vol. 19 (1969).

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kot and Shahi Tump. This proves that these sites were either productive or religious centres of these cults. At Gumla and other neighbouring sites, numerous terracotta figurines of a serpent goddess have been found. This reveals that these sites were inhabited by serpent worshippers. Besides there is a bull head painting from Gumla as horned deity and compared it with that of Kot Diji. It has been represented anthropomorphically in the seals found at Mohenjodaro. Its worship had also reached the late Neolithic or Chalcolithic phase at Burzhom in Kashmir. The source of worship of such figurines in Sind as well in Punjab and South Afghanistan was Hissar in Iran where such a horned deity was worshipped in the third cultural period.

SCRIPT

The potter's marks first apparently in Mundigak IV and Damb Sadaat II may indicate the beginning of writing. It is absent at other sites such as Amri, Gumla, Kot Diji and Kalibangan in pre-Harappan times. Gradually this writing seems to have assumed the final form of script during the Harappan period.

METHODS OF DISPOSING THE DEAD

From the discovery of cemeteries at Nal, Shahi Tump, Kalibangan, etc., it seems that there were three or four methods of disposing the dead; burial in pits (within the house), burial in pits after exposure of the body (within the house) and burial in urns after cremation. However, the exact chronological order of these practices is not yet known. Among the grave goods are found pots and pans, copper tools and weapons, ornaments of semi-precious stones and a copper/bronze mirror.

END OF PRE-HARAPPAN CULTURE

The pre-Harappan culture at Gumla, Kot Diji and other sites in Sind and Punjab seems to have been destroyed by the Harappans. The pre-Harappan settlement at Kot Diji was destroyed by an extensive fire which left its mark as a thick black band between layer 3A and 4, almost all over the settlement. This destruction by fire is attributed to the Harappans for their remains immediately overlie those of the Kot Dijians. At Gumla, this culture was destroyed by fire and a fight in which sling balls and terracotta missiles were also used. At Kalibangan, the takeover by the Harappans seems to be peaceful.

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CHAPTER X

HARAPPA CULTURE
(*C.* 2350-1750 B.C.)

The designation 'Harappa Culture'[1] was given after the name of the site near Montegomery, in Pakistan where its distinctive characters were first recognized. There was cultural uniformity both throughout the several centruries during which this culture flourished, and over the vast area it occupied. This culture seems to be *nulli secundus* in Indian history for its unique achievements. The surplus production of raw material and finished goods increased and developed the urban centres. Its authors are known to be the town planners, and their elaborate drainage system was far in advance of anything to be found at that time. They are also known to have invented a script. There was sudden efflorescence in metal because different types of copper and bronze artifacts have been discovered. Trade and commerce developed, and a well regulated system of weights and measures for the first time appears to have come into existence.

EXTENT

The Harappa culture covered a wide region. In the extreme west, it extended upto Sutkagendor, about 40 Km. to the east of Iranian border, and in east upto Alamgirpur, near Delhi. The stretch of this land in the east-west is about 1550 Km. The straight distance between Ropar and Bhagtrav respectively the northern most and southern most Harappan stations is 1100 Km. Recently, this limit extended both in the north as well as in the south by the discovery of the Harappan sites. Manda situated 28 Km west of Jammu represents the northern most site of the Harappa Culture. Here the finds include typical Harappa pottery, triangular cakes and a double-spiral headed copper pin of West Asian type. This limit extended in the south up to small Harappan trading stations of Malvan and Jokha on the Tapti, where Lustrous Red Ware and the fabric have been found as well as Daimabad in District Ahmadnagar in—Maharashtra where a pot incised with three Harappan characters has been found. The whole area covered Baluchistan, Afghanistan, North West Frontier, Punjab,Jammu, Sind, North Rajasthan, Uttar Pradesh almost Delhi, Kutch, Saurashtra, Central and Southern Gujarat as far as Surat and some

1. It is also known as Indus Civilization from its general distribution over Indus Plains; but actually it covered wider or region as known by later excavations.

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portion of Mahārashtra. Several sites of this culture have been discovered, but among them important excavated sites are as follows :

BALUCHISTAN, AFGHANISTAN AND NORTH WEST FRONTIER

Harappan Culture is known to have influenced the several cultures of the excavated sites of Baluchistan. Among them mention may be made of Sutkugendor[1] and Sotka-Koh[2] on the Makran Coast. These Harappan settlements near the ancient Arabian sea coast were ports and controlled much of the economic life of southern Baluchistan as well as the intermediate outposts for coastal sea trade with the west and also with the coastal Gujarat, if necessary. Mundigak[3] in Afghanistan and Shar-i-Sokhta[4] in Seistan have contacts with this culture. Gumla and Hathala[5] are the important excavated sites of North-West Frontier.

PUNJAB AND SIND

In the Punjab, Harappa is very important on account of its size and finding material. Ropar[6], Bara[7] and Salaura in East Punjab mark the northern boundary of the Harappa Culture. The recent Harappan sites discovered in Punjab are Chandigarh, Sanghol at a distance of 40 Km from Chandigarh in Ludhiana District, Dadheri and Saraya Khota near Tanila. In Haryana, the noted Harappan sites are Banawali, Mitathal and Rakhigarhi.

The significence of Mohenjodaro in Sind is also no less. Kot Diji[8] is an important discovery. Another recent discovery is Judeiro-daro about 30 Km north of Jacobabad. Amri[9] on the right and Chanhudaro[10] on the left plains of the Indus produced a great deal of interesting material. Ali Murad is also an important Harappan site.

NORTH RAJASTHAN AND UTTAR PRADESH

In North Rajasthan, the most important site is Kalibangan,[11] famous both for pre-Harappan and Harappan cultures. Alamgirpur,[12] near Delhi and Uttar Pradesh is the outlying site where there was Harappan and post-Harappan settlement.

GUJARAT

The movement of Harappans into Gujarat might have been somewhat later than the rise of the large cities in the north. It is logical that Harappans should have

1. Stein A., '*An Archaeological Tour in Godrosia*', MASI, 43, pp. 60
2. DALES F., *Antiquity*, June *1962*, pp. 86-92.
3. Casal, Jean-Marie, *Fouilles de Mundigak*, Paris, *1961*.
4. Tosi, Maurizio, "Excavation at Shahr-i-Sokhta'... Oct.—Dec. 1967 '*East and West*', Vol. 18 (1968), pp. 9-66.
5. DANI, A.H. *Ancient Pakistan*, Vol. V, 1970-71.
6. *I.A.R. 1954-55*, pp. 11 and 55.
7. *Ibid*, pp. 9-10.
8. Khan, F.A., 'Excavations at Kotdiji' *Pakistan Archaeology*, No. 2, *1965*, p. 43.
9. Casal, Jean-Marie, *Fouilles de'Amri* Vols. I & II, Paris, 1964.
10. Majumdar, N.G., MASI, No. 48. pp. 35-38.
11. Ghosh, A., *Indian Prehistory*, pp. 113. 56, *I.A.R. 1962-63, 65-66.*
12. *Ibid., 1958-59.*

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preferred the land route from Sind, as shown by JOSHI,[1] and having entered at Kotara, reached Kotadi and then Surkotada and other sites in Kutch. Some Harappans might have gone to Saurashtra by the sea. Lothal,[2] the coastal town, is the most important excavated site. The origin of the inland settlement of Rangpur[3] may have somewhat post-dated Lothal. The other similar excavated sites are Rojdi,[4] Prabhas[5] Somnath[6] and Desalpar,[7] Mehgam[8] and Cavanesvar on the north and Telod on the south bank of the Narmada. Bhagtrav on the Kim, a tributary of the Tapti, and later on Malvan[9] and Jokha[10] on the Tapti are small trading stations of the Harappan and Post-Harappan periods.

Throughout this vast zone is noticed some sort of uniformity in various aspects of civilization such as town planning, sanitation, art, religion, weights and measures, seals, script, ornaments and methods of the disposal of the dead. A few variations have been observed in pottery fabrics and designs, but these are due to local environments. There was no doubt some unifying factors working for establishing uniformity in different spheres. Some sort of governmental or social organization might have been there for enforcing it. It might have been due to certain economic circumstances. Wherever these people migrated, they might have carried civilization with them.

First, this culture originated and developed in metropolitan centres of Harappa and Mohenjodaro, but gradually it spread to provincial regions. At one point of time so much expansion of Harappa culture does not seem to be possible. D.P. AGRAWAL[11] appears to be right in thinking that the Harappa culture was never an empire but a shifting phenomenon both spatially and temporally.

DATE

Attempts have been made from time to time to fix the date of the Harappa culture. J. MARSHALL[12] has assigned the date to this culture between 3250 and 2750 B.C. Excavation has brought to light seven different layers of buildings at Mohenjodaro and a period of five hundred years has been assigned for the whole strata. The latest settlement of Mohenjodaro has been attributed to 2750 B.C., so that the occupation of the seven cities ranges between 3250-2750 B.C. This rough dating however, has been confirmed by the find of various Indus valley objects in datable strata in Sumer and Mesopotamia.

M. WHEELER[13] gives 2500-1700 B.C. as the date of Harappa culture. The Indus Civilization was matured by the time of Sargon dynasty, the mature Harappan

1. Joshi, J. P., "Explorations in Kutch and Excavation at Surkotada and new light on the Harappan migration", *JOI*, Vol. XXII, 1972.
2. Rao, S.R., *Lothal and the Indus Civilization.*
3. Rao, S.R. *AI*, Nos. 18 and 19.
4. *I.A.R., 1957-58*, p. 18; *1958-59*, pp, 14-21.
5. *I.A.R., 1956-57.*
6. *Ibid, 1955-56.*
7. *Ibid, 1963-64.*
8. *Ibid., 1956-57*, pp. 14-15.
9. Allchin F.R. and Joshi, J. P. 'Malvan' in '*Archaeological Congress and Seminar Papers*, Ed. by S. B. Deo, Nagpur *1972*, pp. 36-42.
10. Mehta, R. N. and Shoudhary, S. N., *Excavation at Jokha*, Baroda, 1971.
11. *The Copper Bronze Age in India*, p. 96.
12. *MIC.*
13. *The Indus Civilization.*

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is datable to 2300 B.C. and then early Harappan may go to 2500 B.C. There is a 70 ft. deposit at Mohenjodaro, and the Mesopotamian contacts of about 2300 B.C. must have come from relatively high levels.

Integrating the archaeological and C^{14} dating evidence, D.P. AGRAWAL[1] came to conclusion that the total time span of the culture should be between 2300 and 1750 B.C. He proposes time spreads of 2350-2000 B.C. for the metropolitan centres and 2200-1700 B.C. for the peripheral sites. Wherever the traits of a culture occur, we cannot apply the total time spread to it. The Harappa culture was a shifting phenomenon both in terms of time and space On the basis of seals, beads, metal objects, etc., found at the sites of Western Asia and Harappan sites in India, it is noticed that the reliable contacts are confined to Sargonid and Isin-Larsa levels which indicate a period beetween 2350 and 1770 B.C.

So far, there are no C^{14} dates from real early Harappan levels of she metropolitan centres. For early phase, we have C^{14} dates only from the provincial sites of Kalibangan, Lothal and Rojdi. The average date of six samples from late levels is 2005 $\pm$. From this, one could place the end of the Harappans at Mohenjodaro to 2000 B.C. G.F. DALES[2] gives the mature Harappan a span of 2154-1864 B.C. From the study of the samples of phase II of Kalibangan, it appears that the beginning of the Harappan culture can be placed at 2200 (2180) B.C. at the maximum and 1800-1700 B.C. for the end. At Lothal, another series gives dates between 2080 $\pm$ 115 and 1800 $\pm$ 140 B.C. years respectively, and a single date from a late level at Mohenjodaro gives 1760$\pm$115 years. Thus the available dates suggest that for the peripheral Harappan regions, the maximum spread could be 2200—1700 B.C.

For the metropolitan regions, we do not have any C^{14} dates from early phases. By extrapolating on the basis of Damb Sadat II and Kot Diji I dates, we may place the beginning of Harappans at Mohenjodaro to 2300 B.C. Thus the bracket for the metropolis would be 2300—2000 B.C. whereas for the provincial regions, it is 2200 to 1800—1700 B.C.

Thus, it is evident that the Harappa culture was never an empire but a shifting phenomenon both spatially and temporally. Whereas it came to an end around 2000 B.C. in the metropolis, in the provincial regions it lingered on till 1700 B.C.

It is interesting to note that Harappa culture co-existed with the Southern Neolithic cultures which had a long spread from 2550—900 B.C.

ORIGIN AND AUTHORS

Town planning, pottery, script, weights and measures are the essential traits of the Harappa culture. They do not seem to have originated from one but from several sources. Skeletal remains of human beings have also been discovered in the excavations, but it is somehow difficult to give their definite racial identification. Evidence has been forthcoming from Sind, Punjab, North Rajasthan, Baluchistan

1. *The Copper Bronze Age in India*, p. 96.
2. New Investigations of Mohenjodaro, *Archaeology*, 18, *1965*.

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and Indo-Iranian boarderlands about earlier antecedents of the Harappa culture but they do not throw sufficient light on the origion and authors. Hence, scholars hold divergent views about this problem.

WEST ASIAN THEORY OF ORIGIN

FAIRSERVIS,[1] S. PIGGOTT[2] and other scholars are of view that Harappa culture originated from Western Asia, especially from Iran. It had come to the plains of Indus through Baluchistan and Afghanistan after having given birth to a number of village cultures. S. PIGGOTT holds that the origin of the Harappa culture itself—which appears in the Indus valley with all the essential ideas of Early Dynastic Sumer such as civic organization, writing, sculpture, seals and large-scale metal working, but with none of the points of detailed similarity.

Analogies have been traced between certain Harappan pottery motifs and objects, and those of Kili Ghul Mohammad, Kulli, Amri, Nal, Quetta and Zhob. It is possible that the Harappans might have borrowed some ideas from these cultures. The presence of such elements as the pipal leaf, the willow leaf, the overlapping scales, hatched triangles of patterns, the antelope or ibex in panels and the Amri-Nal polychrome style suggests a rather close relationship between the Amri-Nal and the Harappan styles.

The Harappans are known to have borrowed the idea of cities from the contemporary Sumerians, but established cities of their own with a superior planning. In south Baluchistan the Kulli female figurines seem to be the earliest, and the Harappans might have learnt from them. L.A. WADDEL[3] advocates that the Indus valley was colonised by the Sumerians and that they introduced their language and script. PRAN NATH[4] shares the views of L.A. WADDEL and traces the origin of the Indus Valley script to Sumer.

SEWELL and B.S. GUHA[5] on examining the available human skeletons and skulls pronounce that the human remains disclose four ethnic types, viz. Proto-Australoid, Mediterranean, Mongolian and the Alpine at Mohenjodaro. J. MARSHALL regards the population of Mohenjodaro as cosmopolitan. Thus, the population was not homogeneous but heterogeneous. This proves that the Harappans were not local people but colonizers.

INDIGENOUS

The other view is that Harappa culture is indigenous. It borrowed certain elements of the indigenous cultures. A. GHOSH[6] thinks that some of the elements of pre-Harappan culture at Kalibangan and elsewhere in North Rajasthan known as Sothi culture continued in the mature Harappa. The Sothi people developed themselves into the Harappans. The Sothi culture underlay the Harappan at so many sites and that the Sothi people lived together with the Harappans at Kalibangan, not only at the same site but in the same houses. The bonding of the Sothi brickwork

1. Excavations in the Quetta Valley, West Pakistan, *APAMNH*, Vol. 45 (2).
2. *Prehistoric India.*
3. *Indo-Sumerian Seals deciphered.*
4. *IHQ, 1931.*
5. *MIC*, pp. 599-648.
6. *IP*, pp. 113-118.

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at Kalibangan was the same as practised by the Harappans, even though the size of the bricks was different. Sothi culture is known to be Proto-Harappan in view of the strong Sothi sub-stratum noticed in the make up of the Harappa culture at Kalibangan and Kot Diji.

The six groups of the Sothi pottery at Kalibangan, as many as three have sturdy fabric as the Harappan and one of them is identical with its Harappan counterpart not only in fabric but also in slip and painted designs. Of the painted designs, the fish-scale and pipal leaf are common to both; so is the pottery with external ribbing which occurs at Mohenjodaro and Harappa as also on the surface of most of the Sarasvati sites and is thus a probable Sothi feature. External cord-impression, a Sothi characteristic confirmed by Kalibangan excavation, occurs also on typical Harappan shapes at Mohenjodaro. Basins with deep incisions or shallow combings on the interior, also a confirmed Sothi feature, are found in the Harappan levels of Ropar. The pre-citadel Harappan ring-stand is paralleled by finds at Mohenjodaro even in the details of the obliquely cut rim and re-curved base. The short-stemmed dish-on-stand of the Sothi continues in the Harappa. A terracotta cake of the lower levels of Kot Diji anticipates a typical Harappan artifact.

Very important is the conclusion reached by SARKAR[1]. So far as cephalic index is concerned, the Harappan people of Mohenjodaro have similarities with the present-day people of Sind, those of Harappa with the people of Punjab and those of Lothal with the people of Gujarat. It can only mean that the Harappan culture was abopted by the local people at different centres; there should be no talk of Harappan colonization in any region of vast expanse of the culture.

Y.D. SHARMA[2] advocates that Sothi my be regarded as only one of the cultures which went into the making of the Harappa culture. But there were other elements such as Amri, Nal, Zhob, Kulli and Kot Diji which apparently participated in varying degrees in giving something of their own to the Harappa culture. The fact that certain elements occur also in Amri, Zhob, Quetta, Sur Jangal, Mehi-Nundra cultures, etc., does not indicate necessarily that these elements have found their way into these cultures from the Sothi culture. The common occurrence of these elements arises either out of mutual borrowing or borrowing from a third parent source. Till a qualitative and quantitative analysis of these Harappan elements which are distinctinctively or solely Sothi and till they can be shown to preponderate over other Harappan elements which may be found in Amri, Zhob, Kulli cultures, etc., Sothi may be regarded as only one of the cultures which went into the making of the Harappa culture. It is one of the partners and perhaps not a major partner either. Also its influence is to be seen more in Rajasthan, Punjab and Uttar Pradesh than at parent sites of Harappa and Mohenjo-daro.

S.R. RAO[3] thinks that there were different indigeneous cultural groups in Gujarat before the advent of the Harappans on the scene. There was the occurrence of the Micaceous Red ware and Painted Black and Red Ware in the lowest level at Lothal along with the characteristic wares. There was no cultural vacuum in the

1. *IP*, p. 118.
2. *Ibid.*, pp. 131-135.
3. *IP*, pp. 129-131.

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pre-Harappan times. The Micaceous Red Ware people had already developed the bowl with a stud-handle and painted their vessels with a very fine brush. The designs included curvilinear patterns, zig zags, vegetable motifs and hatched diamond; the main ceramic forms being bowls and jars with flaring rim. They also used a coarse grey ware decorated with incised patterns. The Harappans borrowed the ceramic traditions of the Micaceous Red Ware people at Lothal which explains the occurrence of the bowls with or without handle in the Harappa fabric also. The black and red ware and the Coarse Grey Ware come to be used by the Harappans resulting in a blending of the two cultures.

As regards Micaceous Red Ware as one of the contributions to the Harappan civilization in Saurashtra, it is argued that at no place so far a purely Micaceous Red Ware horizon has been isolated. It is not justified in speaking of Micaceous Red Ware in Saurashtra as one of the elements of the Harappa culture but is not a culture by itself.

The origin of Harappa culture may be traced from the findings of the pre-Harappan cluture found at different sites both in India and outside. The fortified settlements found at Mundigak, Kalibangan, Kot Diji and Amri gradually gave origin to the cities like Harappa and Mohenjodaro. The multicoloured painted pottery traditions of earlier phase were giving way to the different types of pottery all over from Afghanistan to the Indus. The metallurgical techniques make their first appearance in this region in Mundigak and gradually transmitted to eastern sites. The potter's marks first appearing in Mundigak and Damb Sadaat may indicate the beginning of writing. The Harappans took up these new ideas, and working them out vigorously created Harappan culture with certain individual traits.

The available material regarding the authors, the race of the Harappan culture is scanty, dubious and capable of different interpretations. The script has not so far been deciphered. The anthropological and statuary evidence does not help us in pointing at the authors of this culture. Nothing can be said positively from the study of a few human skeletal remains. Statuary material is meagre, and the artists were not anthropologists. Hence, the scholars came to different conclusions. The authorship has been ascribed to Dravidians, Brahuis, Sumerians, Paṇis, Asuras, Vrātyas, Vāhikas, Dāsas, Nāgas, Aryans, etc.

DRAVIDIANS-BRĀHUIS

Majority of the scholars such as R.D. Banerji[1] and J. Marshall[2] propounded a theory that the Harappans were Dravidians. It is said that the similarities between the pottery, beads and necklaces as also between the marks on the south Indian pottery and the Indus script point to the Dravidian origin of the Indus civilization. Dravidians are known to be the original inhabitants of India. The Brāhuis speaking the Dravidian language are known to be the authors of the Harappan culture. The Harappan script is known to be the Dravidian script. Dravidian language is independent of Sanskrit.

1. *MR*, Dec. *1924*, p. 674.

2. Mem. Arch. Surv. India, 31, p. 14.

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As against this, it is said that the Dravidians of south India cannot be the authors of the Harappan culture because excavation in the South has hitherto revealed no traces of this culture. The similarity of the south with the Harappan was due to its influence which spread afterwards. It is argued that Arya and Dravida do not indicate any racial differences, both being of the same stock. They have been connected with North and Central Asia. No specimen of Harappan script has been found in the South where the bulk of the Dravidian people live. We have absolutely no knowledge of the Dravidian language in so early period. As to the racial type of the ancient Dravidians, we know next to nothing The modern Dravidians cannnot be said to be the same as their ancestors of the Harappan period. There is absolutely nothing to show that the Dravidians were living in India during the Harappa period.

The Brāhuis, though speaking a Dravidan language, are of Turko-Iranian origin, and are ethnically quite distinct from the various peoples speaking Dravidian languages in Central and southern India. There is no definite evidence to support the Brāhui authorship of the Harappan culture.

SUMERIANS

The Sumerians are credited by some scholars such as V. GORDON CHILDE, L.A. WADDEL[1] and VAIDYANATHA IYER with being the authors of the Harappa culture. The Sumerians were probably a mixed race of the Aryans and Dravidians, and that they migrated from Mesopotamia to India. The use of Sumerian material such as beads, seals and pottery was prevalent in India during the Harappa period. L.A. WADDEL tried to prove the Sumerian origin of the Harappan. He maintained that the Indus valley was colonized by the Sumerians and that they introduced their language and script.

We know nothing as to the racial features of the Sumerians. They no doubt came in close contact with the Harappan people and probably formed part of their population, but there is nothing to credit them with the authorship of the Harappa culture. According to the historical traditions in Mesopotamia, the authors of the Sumerian civilization themselves came from outside and they brought with them agriculture, metal work and the art of writing. Indian seals, beads and pottery of the Harappan period have been discovered in the excavations of some sites in Mesopotamia.

PAṆIS

RAM PRASAD CHANDA[2] puts forward the claim of the Paṇis mentioned in the *Rigveda*. It is not proved that the Paṇis were non-Aryans. They may belong to the Aryan group, but were hated on account of their greedy nature. It is not possible to identify them with any of the known race.

1. *Indo-Sumerian Seals deciphered.*
2. Mem. Arch. Surv. India, 31,5.

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ASURAS

BANERJI SASTRI[1] regards the Asuras mentioned in the Vedic literature as the authors of the Harappan culture. They are known to be pre-Aryan as the Harappan culture is to be of the non-Aryans. They are known to have migrated from the Indus Valley to Iran because of their difference with Vedic Aryans. In Harappan culture, there is actually no material which can be ascribed to the Asuras. The Asuras may be a sect of the Aryans themselves.

D.P. MISRA[2] also regards Asuras the kinsmen of the Devas, as the authors of the Indus Civilization. The long drawn out fratricidal wars between the two resulted in the utter defeat of the Asuras who were not only ousted from Devaloka but also forced to yield eastern Iran and Afghanistan to their rivals. They finally came to the valley of the Indus and laid the foundation of what is known as the Harappan civilization. Archaeological evidence including that furnished by the recent excavations in Central Asia by Soviet archaeologists has been cited to support the close affinity between the civilization of Central Asia and that of the Indus Valley. Finally, it has been suggested that in all probability ancient civilization of Sumer and Egypt received their first civilizing impulse from the Asuras of the Indus Valley. The difficulty in accepting this view is that Indus Civilization flourished much earlier than the Asuras as known from the literary traditions. Hence, the Asuras can hardly be regarded to be the authors of the Indus Civilization.

VĀHIKAS

VĀHIKAS have found an advocate in SHEMBAVNEKAR.[3] They are found mentioned in the *Mahābhārata* as natives of the Punjab, and they participated in the Mahābhārata war. It is not wise to identify the so much late race mentioned in the *Mahābhārata* with the authors of the Harappa culture.

DĀSAS, DASYUS AND NĀGAS

RAWLINSON[4] and VENKATESVARA[5] think Dāsas, Dasyus and Nāgas as mentioned in Vedic literature to be the authors of Harappa culture assuming it to be of pre-Aryan nature. Neither do we know as to the ethnic type of the Dāsas, Dasyus and Nāgas nor is their any evidence as to the authorship of this culture.

ARYANS

LAW,[1] VENKATESVAR,[2] SARUP,[3] DIKSHITAR,[4] DAS[5] and A.D. PUSALKER[6] regard Harappan civilization as Aryan origin. Some scholars consider the date of the beginning of the Vedic age earlier than the period of Harappan culture. These scholars advance the following arguments in support of their opinion:

1, *ABORI*, XVIII, *1937*.
2. *SITPHOI*, pp. 61-95.
3. *IHQ*, *1936*, pp. 477-84.
4. *AP*, 34, pp. 84-5.
5. *Ibid.*, pp. 86-90.
6. *IHQ*, *1932*, pp. 121-164.
7. *AP*, 1934, 86-89, *Msyore University Journal*, *1930*.
8. *Ganga*, 1933, pp. 62-69.
9. *Culture of the Indus Valley*, *Madras*, *1933*.
10. *Rigvedic India*,
11. *ABORI*, XVIII, *1937*.

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(1) It is to be noted that the date of the finalization of the canon of the four Vedas is later but the Vedic hymns were being composed for several centuries earlier. The religions of the Harappan people represent a later phase of the Rigvedic culture.

(2) It is argued that the exclusion of the Sindhu-Sauvīra from the region of the Aryas in the later *Sūtras* shows that the Indus valley was inhabited by the non-Aryans. The *Rigveda* mentions fights in the Indus valley. It may have been that some foreign element wrested the Indus colony for a time from the Vedic Aryans in the post-Vedic period and hence the *Gṛihyasūtra* excluded the Sindhu-Sauvīra.

(3) SARUP refers to the knowledge of writing displayed by the citizens of Mohenjodaro by their seals which shows a later phase than the Rigvedic age when writing was not known.

(4) As to the racial type of the Aryans, it is suggested that they were probably a mixture of the Nordics, the Mediterraneans and the Alpines. As to the existence of the Aryans in the Indus Valley at so early a period as the age of the Harappa culture, it is held by some, on the evidence of skeletal material, that the Aryans formed part of the diverse population of these days.

(5) The Vedic people were not ignorant of stone forts, walled cities, stone houses and brick edifices. The '*Pur*' in the *Rigveda* has been interpreted by PISCHEL and GELDNER to refer to the fortified cities. Further, it is inconsistent to interpret the word '*Pur*' from the *Rigveda*' as meaning 'castles' or forts in the case of Dāsas and 'simple earth works' in the case of Vedic Aryans.

J. MARSHALL[1] has advanced the following arguments to prove that the Vedic culture is quite distinct from that of the Harappa culture and, therefore, the Vedic Aryans cannot be taken to its authors.

(a) The Vedic Aryans were a partly pastoral, partly agricultural people, having no knowledge of the amenities of city life and whose homes were mere structures of bamboo, while the domestic and civic architecture at Mohenjodaro tells quite a different tale.

(b) The metals used by the Indo-Aryans were gold and copper or bronze, silver and iron coming later. Among the Harappan people, iron was not discovered at all.

(c) The Indo-Aryans wore helmet and defensive armour which were unknown to the Harappan people.

(d) The Vedic Aryans were meat-eaters having an aversion to fish, while the latter was an ordinary article of food of the Harappan people.

(e) The horse, which played an important part with the Indo-Aryans, was unknown to the Harappan people. The tiger and elephant were familiar among the Harappan people while there is no mention of the tiger in the *Vedas*, and the elephant is but little known.

(f) The Vedic Aryans revered the cow while the Harappan people replaced it by the bull.

1. *MIC*, pp. 110-112.

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(g) Aniconism is the normal feature of the Vedic religion while iconism is in evidence everywhere at Mohenjodaro and Harappa.

(h) The cults of the Mother Goddess and Śiva have no place in Vedic pantheon where the female principle is almost wholly subordinate to the male, whereas both the cults are in the forefront among the Harappans.

(i) The entry of the Aryans into India is held subsequent to 1500 B.C. when the Harappan culture disappeared. One cannot think of the Aryans in connection with the Harappa civilization.

A.S. ALTEKAR[1] for the first time suggested of the Aryans entry into India at 2000 B.C. and their co-existence in the Punjab with the Harappans in the Indus Valley down to 1400 B.C. on the following grounds. Inspite of occasional wars, the Aryans and the Harappans were not only flourishing together in India, but were influencing mutual religion and culture as well as during a period of about five centuries from 2000 to 1500 B.C. The Rudra of the Vedic religion bears close resemblance to the Mohenjodaro God with horns surrounded by animals. The worship of the Mother Goddess, animals and trees like *Pipal* was also most probably borrowed by the Aryans from the same source. The same seems to be the case with the *yogic* practices. Horse seems to have been known at Mohenjodaro, Lothal, Rangpur and Gumla during the Harappan period. During this same period at Kalibangan and Lothal, fire alter is noticed. There was thus a commingling of cultures, Vedic and non-Vedic and for the authorship of the composite Harappan culture, we need not look to any particular race. Every race in the diverse population contributed its share to the civilization.

TOWN PLANNING

People during the Harappan period on the riverine plains of the Indus and the Punjab built well-planned cities the like of which are not seen anywhere else in Iran, Egypt or Western Asia. Among them, Mohenjodaro and Harappa were the metropolitan centres, and the others of secondary important towns are Chanhudaro, Kalibangan, Kot Diji, Lothal, Rangpur, Sutkagendor and Sotka-koh. The archaeological excavations conducted at these sites furnish information regarding town planning and architecture. The town planning is marked by uniformity which is noticed in lay out of the town, streets, structures, brick-sizes and drains. This uniformity was probably brought by centralization of production along with its efficient administration.

FORTIFIED CITIES

The grid or rectangular system seems to have remained characteristic of town planning during the Harappan period. It shares the lay out of citadel and lower town. The citadel consisted of a high rampart wall on broad foundation of mud-work, city gates, and a moat. The city wall had bastions or towers at intervals. The citadel at Harappa is in the form of a parallelogram in plan. The

1. *PIHC*, XXII, *1959*, Presidential Address.

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inner buildings were built on a mud and mud-brick platform and surrounded on all sides by massive defences. These defences too had bastions and later on, butresses also. Gateways in the north and west are indicated. At Mohenjodaro also, there is a Citadel Mound and a Lower City. The citadel platform was protected by a bund. It was defended by bastions throughout its circuit, but the defences are of a less simple and uniform kind than at Harappa. At Kalibangan, the Harappan fortification wall has salients, buttresses and entrances on the south and the north. Unlike Harappa, at no place was the fortification wall integral with any of the platforms within the citadel. Though small, Lothal was a well-laid out town, a "miniature Mohenjodaro" with a rampart encircling main habitation. Brick fortification (or rampart) is noticed at Rangpur. At Banawali in Haryana, the settlement was fortified showing two subjoined parts one perhaps used as a citadel and the other as a residential annexe. At Surkotada in Kutch, there is a fortified structure and a lower habitation area. Sutkagendor and Sotka-koh in the Makran Border in Pakistan were no ordinary ports but fortified hill-forts as well. The citadel at Sutkagendor is built on and around a natural rock which is steeply included. Upon its jagged base is constructed a massive fortification wall of semi-undressed stones. There are also signs of mud-brick platforms in many Harappan sites. Traces of bastions or towers were also observed. Within the citadel, stone foundations of regularly laid out structures are visible. The principal entrance to the citadel was in the south-west corner, where there are remains of a sizeable gateway.

STREETS AND LANES

The Harappan City was divided into many broad streets running at right angles both east-west and north-south. These streets divide the city into many blocks. Their width at Mohenjodaro varied from 9 to 34 feet, and they ran straight sometimes as far as half a mile. They intersected at right angles dividing the city into square or rectangular blocks. Inside this square or oblong, the area is intersected by a number of narrow lanes crowded with houses. Each lane has a public well. No where was a building allowed to encroach on a public highway as in Sumer. The angles of smaller by ways appear to have been rubbed by pack-animals, and the corners of some buildings were rounded off in order that the loads might not be dislodged. Lamp-posts at intervals indicate the existence of street lighting. The streets at Mohanjodaro are unpaved but at Kalibangan, the material used for metalling the road surface notably in the upper levels was terracotta nodules. The streets and lanes at Kalibangan ran approximately north-south and east-west and the houses were built roughly along the cardinal directions. To avoid damage to the houses in street corners by the sudden turning of the cart, wooden fender posts were provided, a few of which survive Kalibangan in Harappan times must have been not only well planned but not densely inhabited so that there was only a single row of houses in each street, and this again, was divided into several blocks, so that many houses had three frontages.

Lothal was divided into six blocks, each built on an extensive mud-brick platform of a varying height. So far four streets, two from north to south and two from east to west, with two side lanes have emerged from the excavations. On one

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side of the street lies a row of twelve houses. Smaller houses on either side of another street are believed to be shops, each with two or three rooms, with different dimensions.

BUILDINGS

From the excavations at Mohenjodaro, Ropar and Lothal, it is clear that buildings of Harappan period were built on high raised platforms. They fall into two main classes :

(1) Dwelling houses and (2) Public buildings.

(A) *Dwelling Houses*

There is much variation in the size of dwelling house-remains which have been found in excavations. The smallest have no more than two rooms. Ordinarily, the houses were provided with several rooms, a kitchen, courtyard, bath-room and possibly an upper storey. The open court was the basic feature of house planning during this period. Generally, the staircase is found in an inner court leading up to roof. In one house of Kalibangan, there are traces of a preserved staircase. In some houses, an outside staircase from the street suggests that the floors were occupied by different families. The strategic position of certain rooms in some of the houses seems to suggest that they were provided for watchmen. Doors were possibly made of wood and were placed at the ends of the walls, not in middle. Ordinary houses very rarely had windows in their outer walls. Possibly perforated lattices were used as windows or ventilators at the top of the wall. Roofs were flat, and must have been made of bamboo and rush matting supported by wooden rafters also. In addition to walls, there were wooden posts provided at the junction of the walls as indicated by postholes to support the roofs of the houses.

Unlike Mohenjodaro and Harappa, the floors at Kalibangan were made firm by ramming, and sometimes capped additionally with mud-bricks or terracotta nodules. However, in one case, the floor is found paved with tiles, bearing the typical intersecting design of circles. Exactly similar design occurs at Kot Diji in what is called a 'bath tub'. While there is no doubt about the existence of this design in the tub-like large vessel at Kot Diji, it should be ascertained, its not already done, whether at Kalibangan it is a real flooring or it too is a part of a tub. It may be of some religious significance.

A noteworthy feature of the houses at Kalibangan was the occurrence of oval or rectangular 'fire places' at different levels. Whereas the exact function of these structures still remains unresolved, some of the recurrent features were as follows : A shallow pit, oval or rectangular on plan, was first excavated. In this pit, fire was made and in the centre a cylindrical or rectangular block was fixed. Terracotta cakes seems to have been used in the performance of the ritual. Fire altars, like structures were encountered in practically each house. Similar five altars have been found at Lothal also.

The location of various trades and industries into specific quarters is the remarkable feature of the Harappan town planning. At Mohenjodaro, a large

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number of dwelling houses, both large and small, unearthed in excavations, represent a wealthy, administrative and merchant class, a larger artisan class and many slaves. At Harappa, there are workmen's quarters which comprise fourteen small houses built in two blocks separated by a long narrow lane. Each house is open on all sides, rectangular, and consists of a courtyard and two rooms. At Lothal, the houses of artisans like copper-smiths and bead-makers were small and made of mud-bricks.

Public Buildings

Besides the citadel on the Stūpa Mound at Mohenjodaro, there were some other public buildings. Near the *Stūpa*, the great structure with extra-thick outer walls has been named the Collegiate Building which probably housed some high official, the high priest, or a college of priests. A pillared hall, 80 feet square, divided into long corridors interspersed with low benches having even seats may probably have served for a public assemby. There were also peripheral towers. In the DK. Area a big structure 250′ long was taken to be the palace. Nearby, circular mud-lined pits built of wedge-shaped bricks showed vitrification though the purposes (metallurgical) was not clear. A big building in VR. Area (87′ × 64.5′) with neatly paved floors and a room with fine conical pits has been suggested to be a restaurant. A more significant structure seems to be the so-called House AI, in HR. Area. It is 52′ × 40′ with 4′ thick walls. Nearby was found the famous seated image of a bearded man. M. WHEELER is inclined to identify it with a temple. A long building to the north-east of the granary has been preserved to be that of the high priest.

Both at Mohenjodaro and Harappa, a granary of massive construction of solid masonry divided into blocks with attached platforms for loading and unloading has come to light. A timber superstructure was provided above the blocks which were arranged in a manner to ensure proper airing. Very big granaries have also been reported from Egypt and Mesopotamia, but they cannot be compared to those of Harappa and Mohenjodaro in specialisation of design and in monumental dignity. The granary at Harappa is the most remarkable and largest building. Besides dockyard at Lothal, another important structure in the acropolis area overlooking the dock is what is considered to be a warehouse or granary. It stands on a 12 ft. high mud-brick platform measuring 165 × 145 ft. and consists of twelve cubical blocks. The Great Bath, 39′ × 23′ × 8′ at Mohenjodaro formed part of a big hydropathic establishment (180′ × 108′). It was reached by a flight of steps on two sides and surrounded by several rows of smaller double storeyed rooms. It was supplied with fresh water taken from a nearby well, brick-lined with gypsum mortar. Its floor and wall have been made absolutely water-tight by three parallel vertical brick walls on the four sides. The emptying outlet in one corner connects it with a big corbelled drain. On the terrace of the bath was a spacious corridor supported on pillars and having on three sides at its back various rooms and gallaries serving as cloak rooms.

Near the south-west corner of the Great Bath is a *hammam* or hot air bath. There is another similar building which shows that people understood the principle

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of the hypocaust bath. Another bathroom establishment consisted of two rows of bathrooms separated by a narrow passage, each bath room having a stairway, a narrow doorway and carefully paved floor. According to MAKAY these ablution places were meant for the priests, while the Great Bath was for the general public.

Dockyard

A trapezoidal brick structure with an overall measurement 710' × 124' with inlet and outlet channels identified as a dockyard at Lothal was the most important public building. Its extant height is 14' but it might have been originally much higher. It was meant for berthing ships and handling cargo. Stratigraphically, this enclosure was connected with the old river-bed of Sabarmati. The recent discovery of five anchor-stones in the basin of the dock, the absolute verticality of the walls of the embankment without any provision for reaching the water-level by means of a ramp or flight of steps and the extraordinary salinity of the silt inside the dock prove that the structure was designed to serve as a dock.[1] U.P. SHAH[2] and LESHNIK[3] are the critics of the dock theory. According to them, this basin was a tank for storing drinking water and probably for irrigation. According to them, Lothal was not a port at all but at the most a large village.

Drainage System

The elaborate drainage system is a unique feature of the Harappan culture, the like of which has not yet been found in any contemporary culture. The proper maintenance of drains both in the streets and houses gives proofs of knowledge of town planning of the people who were well acquainted with the science of sanitation. Both at Harappa and Mohenjodaro, below principal streets and lanes, drains covered with brick or stone were found. Tributary drains from each house were connected with the street drain. The long drain was provided with man-holes at intervals with wooden covers for clearing and the whole system emptied itself in brick culverts to carry away collected rain water. The elaborate drainage system like the town planning constitutes a notable point of difference with Sumer, where the inhabitants had, in most cases, vertical pottery drainage shafts beneath their courtyards, but these had no outlet.

Like Harappa and Mohenjodaro, Lothal had a fine system of sanitation which included a public drain, internal drainage which was joined with the main road, bitumen paved bath rooms and lavatories with a soak-pit behind. A very elaborate drainage in a large house in the south block built over a terraced platform coupled with a separate well might have belonged to an important person, or might be a public house. At Kalibangan, burnt brick drains and soakage jars were provided for the disposal of dirty water and dirty material both in the houses and streets. Sometimes, wooden drains were also used in streets. The use of timber, scooped in a U-shaped manner for drains is noteworthy.

1. S.R. Rao, *Lothal and the Indus Civilization*, pp. 70-73.
2. "Lothal—A port", *JOI*, Vol. 9, 1960, pp. 310-20.
3. "The Harappan Port at Lothal", *American Anthropoligist*, Vol. 70, 1968, pp. 911-922.

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Material Used in Construction

Generally in building walls, pavements, bathrooms, drains, wells, etc., of the towns in the Indus plains, burnt brick, possibly made from ordinary alluvial soil, was lavishly used. Sun dried brick was used only for foundations, packing of terraces, etc. Brick kilns have been found at Mohenjodaro. In most walls, bricks were laid in the English Bond method, in alternate headers and stretchers. A filling of clay or rubbles was used between the faces in very thick walls in order to economize bricks. Mud mortar was generally used as a cementing material. In drains, where more strength or binding force was required, lime and gypsum mortar were used. At the hill-sites in the narrow corridor between the Indus and Kirthar range, bricks were never used but stone. Mud, reed and wood were used in building superstructures. On the outskirts of Ali Murad and Kohtras were found fortified palaces made of stone.

SOCIAL CONDITIONS

The emergence of urban life is a remarkable feature of social conditions during the Harappan period. Several professions, which led to the formation of different classes for earning livelihood, started. The production on a large scale increased the amenities and recreations of the people. A sudden efflorescence of metal led to the manufacture of different types of ornaments, implements and weapons. The organized social life gradually led to the origin of the script.

POPULATION

From the archaeological excavations of some sites, it is known that their population during the Harappan period was urban. Harappa and Mohenjodaro were metropolitan centres while Kalibangan, Chanhudaro, Lothal, Rangpur, etc. were the urban centres of secondary importance. The production of large scale and the presence of rivers to facilitate transport, irrigation and trade gave rise to these cities. SEWELL and GUHA[1] on examining the available skeletal material comprising 26 skeletons at Mohenjodaro pronounce that the human remains disclose four ethnic types, viz. Proto-Australoid, Mediterranean, Mongolian and the Alpine, and thus the population was cosmopolitan in character. On the other hand SARKAR[2] on the basis of the cephalic index shows that the Harappan people of Mohenjodaro have similarities with the present day people of Sind, those of Harappa with the people of Punjab and those of Lothal with the people of Gujarat. It means that Harappan culture was adopted by the local people at different centres, and there is no question of Harappan colonization.

FORMATION OF DIFFERENT CLASSES

The increase in production during the Harappa period led the people to follow a large number of professions and they, in course of time, formed different classes.

1. *MIC*, pp. 599-648.
2. *IP*, p. 118.

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The remains of Mohenjodaro demonstrate the existence of different sections of people who may be grouped into four main classes : the learned class, warriors, traders and artisans, and finally manual labourers. The learned class probably consisted of priests, physicians and sorcerers. The existence of palace with ancient foundations of watchmen's quarters at Mohenjodaro and of ancient fort walls at other sites in Sind point to a class similar to the Kshatriyas, whose duty was to protect the people. Merchants and various artisans such as the mason, engraver, shell-worker, weaver and goldsmith formed the third class. Domestic servants and manual labourers like leather-workers, basket-makers, peasants and fishermen belonged to the last class. The class of workmen is proved by the discovery of their quarters in one block of the town of Harappa. Some houses at Lothal prove that they were of artisans like the coppersmiths and the bead-makers.

FOOD AND DRINK

Wheat, barley, rice and milk were the items of the food, and vegetable and fruits also included in the diet during the Harappa period. Corn was ground into floor on stone querns with the help of grinders, for querns and grinders have been found. Low-legged plates found at Alamgirpur prove that they were used for making bread. In addition, animal food was also eaten because the half burnt bones of animals found in the houses indicate that they were articles of diet.

ANIMALS

By the study of the actual skeletal remains, earthen wares, terracottas and seals, we know about the animals of the Harappa period. They were both domesticated and wild. The domesticated animals were—sheep, goat, cat, dog, humped and humpless bull, cow, pig, buffalo, elephant and camel. Among the wild animals, the tiger, monkey, bear, lion, leopard, rhinoceros and deer are noteworthy. Among smaller animals may be included the mongoose, the squirrel, the parrot, the peacock and the fowl. There is some difference of opinion regarding horse. At Mohenjodaro, horse bones (near the surface) have been found. Lothal too has yielded evidence for the use of horse. Ross reported four horse teeth (of *Equus Caballus*) from the lowest levels of Rana Ghundai. The evidence of horse at Mohenjodaro comes from the superficial level. A terracotta figure from Lothal is scarcely unequivocal. This animal is not a horse but onegar—wild ass. Two clay models from Rangpur are from the upper strata. It is not possible to rule out ZEUNER's cautious appraisal of the supposed equine teeth from Rana Ghundai as those of hemiones. Thus, there is no proof of the regular use of the horse in Harappan times.

DRESS

As regards dress, no actual specimens have been discovered but from a few statues and figurines, we get some idea. One alabaster statue shows that two garments were worn. A shawl-like cloth formed the upper garment and the lower garment resembled modern *dhotī*. Female attire did not differ from that of the male.

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A fragment of woven cloth found at Mohenjodaro is of great interest. The existence of woven cloth at Alamgirpur was provided by impressions on a trough. The yarn seems to be fine though not of uniform thickness. Impressions of cloth were noticeable on sealings at Lothal. Spinning whorls of terracotta discovered at different sites bear testimony to the knowledge of spinning of cotton during Harappa period. Weaving was also practised. Clothes were sewn as would appear from the needles found in excavations of some sites.

FASHIONS OF HAIR DRESSING

There are also various fashions of hair dressing which is clear from male and female figurines. The hair was taken back from the forehead and then clipped or coiled in a knot with a fillet to support it at the back of the head. Sometimes, there is seen a skull-cap curling into a point behind or a taller cap with a rolled brim. Three bronze figures of dancing girls show the hair in a heavy mass taken above the left ear to fall over the right shoulder.

ORNAMENTS

Ornaments included chiefly necklaces, fillets, armelts, earrings and finger-rings for both sexes. Women specially used girdles, anklets, bangles, etc. For the rich, these were of gold, silver, faience, ivory or semi-precious metals; for the poor, shell, bone, copper and terracotta. Various stones such as carnelian, steatite, agate, chalcedony and jasper were pressed into service in the manufacture of beads which evince fine workmanship and technical skill on the part of the lapidary. Filigree work was also well-known to the goldsmiths of Rangpur. They also prepared fine gold beads.

TOILETS AND COSMETICS

We can also form some idea about the toilet and cosmetics of the people. The vanity case with its combinations was found at Harappa. It appears that the ladies at Mohenjodaro knew the use of collyrium, face paint and other cosmetics. It is interesting to note that Chanhudaro finds indicate the use of objects like lipstick, carbonate of lead and a face paint.

WEAPONS, TOOLS AND IMPLEMENTS

Abundant specimens of weapons, tools and implements discovered give us idea of their use in the routine life of the Harappan people. Weapons of war or chase were axes, spears, daggers, bows and arrows but the sword was not yet evolved, nor defensive bodily armour. All are made of copper and bronze. Among the other implements are hatchets, sickles, saws, chisels and razors. The Harnappans invariably used long stone blade tools and weapons for different purposes.

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HOUSEHOLD ARTICLES

Various household articles have been found at excavated sites. Domestic vessels were generally of earthenware of different kinds and shapes—offering stands, goblets, beakers, bowls, basins, dishes, pans, jar-stands, storage jars, etc. Chairs, bedsteads and stools were used to decorate the drawing rooms. There were lamps of copper, shell and pottery. Candlesticks played their part in illuminating the houses of Mohenjodaro.

MEDICINES

Of the medicines used by the Harappan people for diseases we know but little. Pieces of coal black have been identified with '*śilājīta*'. Several little fish bones stored in pottery and the horns of deer and antelope might have served the medical purpose. Coral and leaves of the neem tree were possibly used for the same purpose. All these specifics are still prescribed in *āyurvedic* medicine, and thus, the origin of of the indigenous medicinal system of India may be traced to the Indus Valley civilization.

Both Kalibangan and Lothal have also provided a very interesting example of ancient medical belief and surgery. In a child's skull were circular holes. These holes were made while the child was alive for the wounds made by these holes have healed, that is the edges of the holes have not remained sharp, as when first cut. This practice of boring holes in the head while alive is called 'trepanning'. It was resorted it is believed, to relieve headache, and alleviate inflammation of the mastoid, and on the brain due to injury.

FUNERARY CUSTOMS

Cemeteries discovered in the excavations at Mohenjodaro, Harappa, Kalibangan, Ropar and Lothal enlighten us about the funerary customs prevalent during the Harappan period. Generally, they were located around the perimeter of the settlements. Three forms of burials have been found at Mohenjodaro, viz. complete burials, fractional burials and post-cremation burials. Complete burial means the burial of the whole body ceremonially performed in various forms, along with the grave furniture offerings, etc. Factional burial represents a collection of some bones after the exposure of the body to wild beasts and birds. Human bones are not found in all specimens. The post-cremation burials have been inferred from large wide-mouthed urns containing a number of smaller vessels, bones of animals, and of birds or fish, and a variety of small objects such as beads, bangles and figurines sometimes mixed with charcoal ashes. These urns were buried within dwelling houses or in close proximity. Even at Lothal, three instances of earthen pots containing crushed bones, some pottery and a carnelian bead were noticed at two places in the excavation. It is difficult to say whether these are examples of urn burials, and if so, of children who were very often buried in pots right in the houses.

It appears that the general burial practice was extended inhumation, the body lying on its back, with the head generally to the north. Quantities of pottery were

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placed in the grave, and in some cases, the skeleton was buried with ornaments. A number of graves took the form of brick chambers or cists as it is clear from Kalibangan. At Lothal, in one case, the pit was lined with mud-bricks, which suggest that shrouds, coffins or built-in chest-like contrivances were probably in vogue. At Harappa, WHEELER found the traces of a wooden coffin and the bodies covered by a reed-shroud. Two other types of burial are noticed at Kalibangan; smaller circular pits containing large urns accompanied by other pottery but no skeletal remains and more orthodox burial pits with what are evidently collected bones. At Surkotda in Kutch, the people practised pot-burial as one of the modes for the disposal of the dead. From the Lothal cemetery comes evidence of another burial type with several examples of pairs of skeletons, one male and one female in each case, interred in a single grave. It has been suggested that these may indicate a practice akin to *satī*. It was some sort of ceremonial burial of the wife or servant or dependents after the husband or the master. Such a practice was in vogue in Mesopotamia in very early times.

RECREATIONS AND AMUSEMENTS

There were many ways of recreations and amusements during the Harappan age. Marbles, balls and dice were meant for games. That both at Mohenjodaro and Harappa dice was a common pastime, is indicated by the large number of dices unearthed. Both cubical and tabular specimens are found, the latter being the commoner. Besides, a game of chess or a game very similar to it was known to the people of Lothal because gamesmen with heads of a ram and ox have been found. Some amulets portraying men shooting a wild goat and a large antelope with bows and arrows indicate that hunting was indulged in. Bull fighting was probably another pastime. It seems that birds were kept as pets, and also for fighting. A certain amount of trapping was also carried on, and fishing was a regular occupation.

Clay modelling seems to be a popular pastime of the children as a large number of crude specimens of childish workmanship have been found. Little clay carts appear to have been the favourite toy with children. Usually toys were clay models of men, women and animals, whistles, rattles, etc. The exquisite models of dancing girls in bronze indicate dancing also as a sort of recreation.

SCRIPT AND LANGUAGE

The organised social life in the form of cities necessiated the origin of writing. At both Harappa and Mohenjodaro, a large number of seals with inscriptions have been discovered. They are of two main types, the first square, with a carved animal and inscription, and the second rectangular with an inscription only. At Kalibangan, some steatite seals and potsherds with some inscriptions have been discovered. A broken steatite seal and potsherds with incised pictographic signs have been recovered from Kot Diji. The seals and sealings discovered at Lothal bear positive impressions of Indus seals. An inscribed bowl from Rojdi also bears three Indus signs.

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The number of signs of the Harappan script is known to be about 400. This script has been characterised by some scholars as pictographic because some signs represent birds, fish and varieties of the human form. The clarity and straight rectilinear, character, and the extent and variety of its signs precludes the possibility of the script being alphabetic. Admirable ingenuity is displayed in modifying the signs by the addition of strokes or accents, and in combining one sign with another in the form of conjuncts. As some of the signs apparently standing for open or closed syllables, it is regarded as phonetic. Some scholars regard it as ideographic. Regarding the mode of writing, scholars generally agree that the script was written from right to left. On the basis of overlapping of the symbols on the inscribed seals and potsherds found at Kalibangan, B.B. LAL[1] proved that the script was written from right to left. Unless this script is deciphered, nothing can be said positively about the nature of the script.

About the origin of the Harappan script, different theories have been propounded. On the basis of the resemblance between the Harappan script on the one hand and the Sumerian and the Elamite on the other, many scholars like L.A. WADDEL[2] and PRAN NATH[3] are inclined to suggest that this script was imported into India from Western Asia. G.R. HUNTER,[4] DAVID DIRINGER[5] and K.N. DIKSHIT[6] hold the view that the Harappan script developed independently in India. SANKARANAND[7] suggests a Tantritic interpretation of the symbols.

Recently, some further attempts have been made to decipher this script. A. PARPOLA[8] and his colleagues, at the Scandinavian Institute of Asian studies, Copenhagen have systematically tried to analyse the signs and then put the data through a computer. Similar attempt was made by the Russians. In India, MAHADEVAN,[9] S.R. RAO[10] and B.B. Lal[11] also worked in this direction. The Russian and Scandinavian scholars and MAHADEVAN like the earlier attempt made by the H. HERAS started with the presumption that the Indus language was Dravidian. S.R. RAO has approached the Indus language whether it is Dravidian or Sanskrit. Actually an attempt of decipherment based on modern analogies of Sanskrit and Dravidan languages not only makes the methods employed suspect but such procedures are not likely to take us anywhere nearer the truth.

Until Harappan script is deciphered, nothing can be said about the language of the people. Scholars think that their language belonged to the Indo-European

1. *Indian Archaeology Since Independence*, p. 17.
2. *The Indo-Sumerian Seals Deciphered.*
3. *IHQ, 1931.*
4. *The Script of Harappa and Mohenjodaro.*
5. *The Alphabet.*
6. *Prehistoric Civilization of the Indus Valley*, p. 46.
7. *JNSI.*
8. Parpola, A., *The Indus Script Decipherment*, Madras 1970; *Further Progress in the Indus Script Decipherment*, Copenhagen, 1970.
9. "Dravidian Parallels in Proto-Indian Scripts", *Jonrnal of Tamil Studies*, Vol. II, 1970, pp. 1-20, also *Study of the Indus Script Through Bilingual parallels*, Tirupati, June *1972.*
10. *Lothal and the Indus Civilization*, pp. 127-135.
11. LAL, B.B. '*Archaeological Evidence for the Indus Script*', London, June, 1973.

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or even Indo-Iranian family while others are of view that it belonged to the Dravidian family.

The graffiti on potsherds discovered from II and III levels at Rangpur shows that some of the Harappan symbols underwent modifications in course of time. A lid from period II-A bears seven signs vaguely resembling the Indus ones. Comparable is an inscribed bowl from Rojdi which bears three Indus signs. A potsherd inscribed with signs vaguely resembling the Brāhmī characters on the one hand and the Harappan signs on the other occurs at Lothal. These graffiti marks range in form from simple strokes to intricate geometric and naturalistic designs. The graffiti marks have been classified into three main groups, respectively comprising, (i) motifs of human forms, animals and birds, (ii) linear symbols evolved from the Harappan signs and (iii) a combination of general linear signs. Some scholars like LANGDON, HUNTER, R.B. PANDEY and D.C. SIRCAR suggest that the Brāhmī script seems to have been derived from the Harappan script. It is possible that graffiti marks in the modified form of Harappan script gradually gave rise to the Brāhmī script in about the sixth century B.C.

The Indus valley during the Harappan period had trade relations with Sumer and Elam, and Harappan seals have been found at the latter sites. It is likely that some bilingual inscriptions discovered in Iraq will give us the right clue for the decipherment of the Harappan script. With the help of the graffiti marks, attempt should be made to trace out the link of the Brāhmī with the Harappan script. This may solve the problem of the decipherment of the Harappan script.

ECONOMIC CONDITIONS

The availability of the fertile Indus alluvium contributed to bring about enough production and agricultural surplus. This in turn led to further development of crafts and industries. For the disposal of the raw material and produced goods, new market centres were established. Overland and oversea trade was in flourishing conditions, and people became prosperous. They could maintain their elaborate social structure and high standard of living.

AGRICULTURE

The abundance of fertile silt and soil contributed to the progress of agriculture which was the main occupation of the people. There is no clear evidence of the kinds of tools used for agriculture. D.D. KOSAMBI has expressed the opinion that the plough was not employed in Harappan times, but only a light toothed harrow. This view is based upon the identification of one of the ideograms of the Harappan script as either a rake or a harrow but it has not been confirmed by any archaeological evidence. The narrow long axes and broad chisels were probably used for ploughing as hoes.

With the Harappan civilization, much more information is obtained regarding grains and crops. Wheat was of two varieties, the club wheat (*Triticum Sphaerococcum*). Barley (*Hordeum vulgare*), probably of a small-seeded six-rowed variety, is also found at both Harappa and Mohenjodaro. Other crops include dates, sessamum, and varieties of leguminous plants such as field peas. Of particular

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interest is the discovery at Lothal and Rangpur of rice husks and spikelets embedded in clay and pottery. At Banawali charred barley grains recovered from the Harappan levels indicate the cultivation of this cereal. Another find of great interest was a fragment of woven cotton cloth at Mohenjodaro which proves that cotton was also grown. Corn was ground into flour on stone querns with the help of grinders, for querns and grinders have been found. The surplus grain was filled in vast granaries which have been discovered at Harappa, Mohenjodaro and Lothal.

CATTLE REARING

Besides agriculture, cattle rearing was the main occupation of the people. From the actual skeltal remains, clay models and seals, it is known that they domesticated humped bull, buffalo, sheep, elephant, pig and camel. These animals served different economic purposes. They were used for milk and meat. For transport purpose, they were also valuable. These animals supplied wool of which cloth was prepared. Different articles were prepared from the bones of animals. Fishing was also practised

INDUSTRIES AND CRAFTS

For the development of crafts and industries, people utilised their natural products in the form of stone, metal, pottery and textile. From the well-planned Harappan cities with roads and houses, it is inferred that house building was the important craft of the people. The craft of Harappan metallurgy appears to have developed because there was sudden efflorescence of copper tools and their variety. Lance heads, chisels, celts, axes, adzes and saws figure among the tools and implements. Weapons of war or the chase were axes, spears, daggers, bows, arrows, maces, slings, perhaps catapults, and swords, made generally of copper or bronze. Objects of gold are reasonably common though by no means prolific. Gold occurs in the form of beads, pendants, armlets, brooches. needles and other small personal ornaments. Silver made its earliest appearance in the Indus Civilization. That it was relatively more common than gold is indicated by the number of large vessels and ornaments made of silver.

The craft of ivory carving was found. Another craft was that of working and inlaying shell. This was used for several kinds of beads, bracelets and decorative inlays. The lapidary's craft was of considerable importance, and its products included the range of steatite seals, beads, various ornaments and numerous weights. Beads were manufactured from a wide variety of semi-precious stones. At Chanhudaro and Lothal, bead-makers shops were discovered with their equipment. The seals were intaglios, made of steatite. Another technique, which deserves mention, is the decoration or etching of carnelian beads.

Pottery was one of the important industries of the Harappan people. Chiefly, it was wheel-made. Plain pottery was being more common than the painted one. It was of different types and varieties. Besides they were of many shapes and sizes.

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The Harappan people were well versed in the manufacture of cotton textile. Some pieces of cotton have also been found attached to a silver vase. Numerous spindle whorls found at different sites testify to the practice of spinning. As markings on the robe of one of the statues seem to indicate embroidery. Probably, this handicraft was commonly practised. Needles of copper and bronze have been found which indicate embroidery. The purple dye on a piece of cotton has been taken to have been produced from the madder plant. Dyers' vats found on the site indicate that dyeing was practised. Boat building was also one of the crafts of a people whose chief interest was trade. A boat carved on one of the seal-amulets and the representation of it on a pottery affirm it.

TRADE AND COMMERCE

As there was development of agriculture and industries, there was enough production. Harappan merchants or caravan leaders carried their trade inside India as well as beyond the frontiers and established their marts and colonies. There was movement of goods from one place to another. For land route trade, cart and cattle were used. The terracotta models of the bullock-carts have been discovered in the excavations. Further, cart-tracks were found on the roads of the Harappan cities. From Harappa and Chanhudaro come copper or bronze models of carts with seated drivers. For longer journeys and through more wooded country, there can be little doubt that the chief means of transport would have been caravans of pack-oxen and other cattle.

There was also maritime trade. The representation on a seal of a mastless ship, with a central cabin and a steersman seated at the rudder, indicates that the Harappan people were acquainted with maritime vessels. The boat has a sharply up-turned prow and stern similar to the archaic representations of Early Minoan Seals, Cylinders of Sumer, and the pre-Dynastic pottery of Egypt. Harappan people were in touch with Sumer and Elam by the sea route also. Mohenjodaro appears to have been a great inland port carrying on trade with Sumer and probably also with Egypt. The Harappan ports Sokta-Koh and Sukkagendor on Makran coast and the dockyard at Lothal attest to maritime trade. It seems that the Harappan also reached Gujarat by sea and were sometimes driven into the interior by circumstances or went there in search of merchandise.

The Harappans maintained close contact with different regions for the import of various metals, precious stones and other articles. Gold seems to be an import from the goldfields of north Mysore where Neolithic settlements contemporary with the Harappan Culture were found. Silver was imported, probably from Afghanistan or Iran. The sources of copper may have been several in Rajasthan and perhaps south India towards the east, and in Bluchistan and Arabia towards the west. Lead may have been derived from either east or south India. Lapis lazuli, though rare, could only have come from the region of Badakshan in north-east Afghanistan; turquoise from Iran; fuchsite from north Mysore; alabaster could have come from a number of sources both east and west, amethyst probably came from Maharashtra; agate, chalcedony and carnelian from Saurashtra and West India; and Jade from Central Asia.

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Of trade of the Indus with Mesopotamia, there are two kinds of evidence, archaeological and literary. Of the former, we may list objects imported from the Indus and exported in return. About two dozen Indus type seals have been discovered from Ur, Kish, Susa, Lagash and Tell Asmar. The other imports are carnelian and etched carnelian beads, shell and bone inlays, including some of the distinctly Indian 'Kidney-shape'. It is probable that the trade included many objects of less durable kind, cotton, spices, timber, etc. From the Indus also, there is the reciprocal evidence. Three cylinder seals of Mesopotamian type, all probably of Indian workmanship, a small number metal objects suggesting Mesopotamian origin and the pot-stone fragment of a hut-pot were discovered at Mohenjodaro. A more definite indication of foreign trade comes from Lothal where a circular button seal of a distinctive kind was discovered. This belongs to a class of 'Persian Gulf' seals known otherwise from excavations at the port of Bahrain, and also found occasionally in the cities of Mesopotamia, notably at Ur. From Lothal also come bun-shaped copper ingots suggestive of a foreign source, and they too may be compared with ingots found on the Persian Gulf islands. Lothal and Harappan cities have yielded the 'reserved slip ware', which also occurs at Ur and Brak in Sargonid levels and provides another evidence of trade links.

The literary evidence from Mesopotamia confirms the archaeological evidence. It shows that in the time of Sargon of Agade and during the succeeding centuries, merchants particularly from Ur carried on trade with various foreign countries. Among those mentioned most frequently are Tilmun, Magan and Meluhha. The first is now fairly identified with Bahrain. The second has been sometimes identified with Oman or some other part of South Arabia, although the similarity of its name to Makran coast in Baluchistan is also a probability. The third is identified with Mohenjodaro or Saurashtra in India. We hear also of boats of Meluhha. Among the imports from Meluhha are various kinds of timber, including a black wood identified as ebony, copper of a different quality from that of Oman, gold, a red stone identified as carnelian, of which were made monkey and kidney shaped, and ivory, of which were made multi-coloured birds and combs.

SEALS

Harappan seals found at different sites were necessary elements in the mechanism of trade. The seals carry two principal kinds of information; first there is an animal often before a manger or standard, and second there is an inscription varying from one or two to a dozen or more ideograms. Many of the seals appear to carry numerals as a part of their information. An interesting context is established for their use in applying clay sealings to bales of merchandise. Impressions of cords or matting are not infrequently found on the backs of such sealings. Further proof of this use is derived from the discovery of several such sealings lying among ashes in the ventilation shafts of the brick platform of what is considered to have been a granary or warehouse beside the 'dockyard' at Lothal.

WEIGHTS AND MEASUERS

Trade implies a regulation of exchange and weights and measures. Cubical weights seem to be the most common. They were made of different types of stones.

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Some weights are small while others are big in size. The sequence of ratios is binary in the case of small weights, and decimal in the case of larger ones. In low weights a ratio in which progression is by doubling—1, 2, 4, up to 64, which is 2/5 of the next unit which is 160, upwards from which progression is in the decimal multiples of 16 i.e. 320, 640, and 1600, 3200 and 6400, also 8000 or five times 1600 and 128000 or eight times 16000. The unit weight has the calculated value of. 8750 gms. the largest weight being 10970 gms. The most frequently discovered weight is one of 13.64 gms. The poor used ordinary pebbles as weights.

A series of measurements at Harappa and Mohenjodaro indicate that both the foot and cubit systems were current simultaneously among the Harappan people. A foot system was ranging from 13.0 to 13.2 ins. and a cubit from 20.3 to 20.8 ins. A slip of shell, 6.62 inches long, found at Mohenjodaro seems to be part of a linear measure. As groups of fine appear to bear special marks, the measure indicates a decimal scale of 1.32 inches rising probably to a foot of 13.2 inches. At Harappa, a fragmentary measure, a bronze rod, 1.5 inches long, broken at both ends, seems to have been based on the standard cubit of 20.62 inches.

RELIGION

Because of the mystery of the script, nothing can be said positively about the nature of the religion prevailing during the Harappan period. The seals, the figurines and the stone images discovered in the excavations no doubt prove that some sort of religion was there. The building, from which a few stone sculptures have been unearthed at Mohenjodaro, is identified with the temple by some scholars. On the basis of these different sources, JOHN MARSHALL has tried to propose certain basic elements of the Harappan religion.

The religious beliefs of the Harappa Culture seem to have varied from region to region. While the Mother goddess was very popular in the Indus Valley, it seems to have been practically unknown in Gujarat. The fire cult, which was popular at Lothal and perhaps at Kalibangan too, does not appear to have been known in the Indus Valley proper. These regional differences seem to have developed later as a result of the combination of various cultural streams. It is also possible that during migration from the centre, the original features got lost or changed.

THE MOTHER GODDESS

A large number of female figures of terracotta have been found in excavations of the Indus Valley. These figurines portray a standing and semi-nude figure wearing a girdle round her lions with an elaborate headdress and collar. JOHN MARSHALL concluded that the great numbers of female terracotta figurines were popular representations of the Great Mother Goddess. The area of distribution of such female figures was not limited to Indus Valley and Baluchistan, but extends to Persia, Elam, Mesopotamia, Asia Minor, Crete, Cyprus, Egypt and the Agean

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World.[1] The uniformity of the style and the wide distribution of such figures indicate that these were religious figures related to the cult worship of the goddess. It seems that the Harappans transmitted to their successors the cult of the Mother Goddess in the form of *Śakti*, *Devī*, *Mātā*, *Bhūmi*, *Grāma Devatā*, all exemplifying the *Magna Mater*.

Some Harappan seals depict the scenes of Mother Goddess. A striking oblong sealing found at Harappa represents the Mother Goddess with a plant growing from her womb on the obverse and a man with knife in hand and a woman with raised hands who was notably to be sacrificed on the reverse. The representation of a figure standing in the bifurcated branch of a *pipal* tree also appears to depict the Mother Goddess. To this goddess, the worshipper brings a goat probably for sacrifice and a number of people standing in the lower register seem to be taking part in the sacrifice. These are absent at Amri, Kalibangan, Lothal, Surkotada, Desalpar and Alamgirpur.

THE HORNED DEITY

Next to the Mother Goddess, worship of the horned deity is noticed at Mohenjodaro, Harappa, Gumla, Kot Diji and Kalibangan but not in Saurashtra. Those found at Mohenjodaro and Harappa are noteworthy. Two worshippers, each backed by a very large cobra, kneel to the god seated in a posture of *yoga*, other clearer representations showing this to be the horned deity. On one seal, the horned deity, standing framed by branches of *pipal* (*ficus religiosa*), is worshipped by an individual who is accompanied by a huge goat and attended by five or six priestesses. On another seal, there is a horned deity with three faces seated cross-legged on a throne, with *penis erectus*, and surrounded by elephant, tiger, buffalo, and rhinoceros, with deer appearing under the seat. Furthermore, he appears on the copper tablets as horned archer and this may well have some connection with the widespread and enduring cult of the horned hunter god.

JOHN MARSHALL identified the above deity with the proto type of the historic Śiva who is said to have shared many of his epithets. One of the representation on the seal has at least three concepts which are usually associated with Śiva, viz. that he is (i) *trimukha* (three-faced), (ii) *Paśupati* (Lord of animals), and *Yogiśvara* or *Mahāyogī*. A horned archer dressed in a costume of leaves is said to have displayed the divine hunter aspect of Śiva. It has been suggested by some scholars that this Śiva-cult was borrowed by the Indo-Aryans from the Harappan culture. The later Śiva of historic period seems to be of independent origin and has no connection with the horned hunter deity. The resemblance of the attributes between the two is superflous. There are no marked stages of development from the horned deity to Śiva. The origin of the attributes of Śiva is of very late period, and their relation cannot be established with the horned deity. This seems to have been derived from Hissar in Iran where it was worshipped in very early period.

1. These figures from Baluchistan are found at Zhob and have been known as "Zhob mother goddesses". These are indeed the representatives of the Great Mother Goddess whose antiquity goes back to Upper Palaeolithic times.

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PHALLIC WORSHIP

A large number of conical and cylindrical stones have been found at Mohenjodaro and Harappa but not at the sites of Gujarat as well as Kot Diji and Kalibangan. These probably symbolise fertility, and some scholars like JOHN MARSHALL connect them with the cult of Śiva as *Liṅgas*. This view of connecting these stones with phallic *liṅgas* seems to be doubtful. These stones seem to be the baetylic stones, and they resemble the baetylic cult of the Near and Middle East. There was baetylic worship in Central Asia and Indus Valley.

Small ring-stones suggest that the worship of the *Yonī*, the female symbol of generation, was also prevalent. It is however possible to take the group of ring-stones as pedestals or bases of pillar. Hence until, the *Liṅga* and one of the ring-stones are found in close association, the question of the prevalance of phallic worship cannot be definitely settled.

STONE IMAGES

Among the eleven images found from Mohenjodaro, the most famous is, the bearded head and bust of a male figure wearing a scarf with a trefoil decoration originally filled with red paste. The trefoil pattern had an international background being found in Mesopotamia, Egypt, Crete where it is associated with a religious character which makes it probable that the Mohenjodaro bust was intended to portray a deity or perhaps a priest.

The two statuettes from Harappa are a matter of debate. One of them is a red sandstone torso 9 cm high. JOHN MARSHALL and S. PIGGOTT have assigned it to the Harappan period. According to V.S. AGRAWAL[1], this red sandstone torso represents the type of Nude God referred to in the *Atharva Veda* or *Mahā-Nagna*, the eternal Nude Man. Rudraśiva as Digambara typifies the same conception. The conception of the male deity Rudra Paśupati was certainly known in that culture. In the opinion of D.H. GORDON,[2] attribution of this image to the Harappa culture without further evidence is both rash and premature. This statute is quite clearly the product of a wholly different art tradition. It seems to be the product of the second century A.D.

ANIMAL WORSHIP

The evidence of animal worship is furnished by the engravings on seals and sealings of Mohenjodaro and Harappa. A seal with half-human and half-animal figures has been found at Kalibangan. Firstly, they are represented mythical and composite creatures e.g. human faced goat or ram, part bull and part elephant, semi-human semi-bovine creature attacking a horned tiger, use of horns for deities and Nagas. Secondly, they are represented as creatures not completely mythical such as unicorns and two horned beasts, accompanied with incense burners or animals figuring as officiant genii. Thirdly, they are represented as the real and natural

1. *Indian Art*, p..22.

2. *The Prehistoric Background of Indian Culture.*

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animals such as (1) the water buffalo, (2) Indian bison, (3) humped bull, (4) rhinoceros, (5) tiger and (6) elephant. Among these animals, the worship of bull was popular. Lastly, there are the figurines and engravings of other animals and birds, ram, pig, dog, monkey, bear, hare, squirrel, parrot and other birds. Some of these animals still figure as the vehicles of Brahmanical deities e.g. the bull of Śiva, the lion of Durgā, the buffalo of Yama, the ram of Agni, the elephant of Indra, etc. It is possible that this type of worship might have been derived from the prehistoric age when they were prevalent.

The discovery of a large number of terracotta figurines of a serpent goddess at Gumla, Hathala and other sites in North West Frontier proves that serpent worship was prevalent in this region. Perhaps it was also in vogue at Lothal. Out of three potsherds each painted with two snakes, one depicts two hissing snakes below a tree, while on the second sherd, of the two snakes, one is shown entering the anthill and the other leaving it. On the third sherd, two snakes are symbolized by wavy lines.

TREE WORSHIP

The evidence of tree worship is found in two forms. One was the worship of the tree in its natural form and in the other case what was worshipped was not the tree but its in-dwelling spirit. A most remarkable seal found at Mohenjodaro represents the deity between two branches of a tree showing it to be the *pīpal* tree. The worship of the deity is indicated by the line of seven figures with plaits of hair falling down the back, indicating that these were female officiants or ministrants of the goddess and also by the figure of a half-kneeling suppliant with long hair, behind whom is a composite animal, part bull, part goat with human face, perhaps the *vāhana* or vehicle of the goddess of the *pīpal* tree. Some sealings from Harappa show trees enclosed by a wall or a railing.

FIRE WORSHIP

People of Lothal and Kalibangan during the Harappan period were fire worshippers. Several small brick enclosures at Lothal are suspected to have been used for fire-worship and one with remains of animal-sacrifice. A brick enclosure for fire-worship was built on the acropolis.

Even at Kalibangan, a noteworthy feature of the houses was the occurrence of oval or rectangular 'fire-places' at different levels. A shallow pit, oval or rectangular on plan, was first excavated. In this pit fire was lit up and in the centre, a cylindrical (sundried or pre-fired) or rectangular block was fixed. Terracotta cakes seem to have been used in the performance of the rituals. Fire altar like structures were encountered in practically each house.

RIVER WORSHIP

Though no direct evidence has been found to river worship, the important part played by water in the daily life of the Indus people, as indicated by the elaborate arrangements for bathing and the Great Bath seems to show that ceremonial

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oblations formed a feature of their religion. The Great Bath has been suggested as the temple of River God. The crocodile probably represented the river Indus.

OTHER RELIGIOUS BELIEFS

On some seals, the symbols of *Svāstika* and the wheel are found depicted. They appear to be religious or magical symbols as in Babylonia and Elam. The wheel symbol also suggests that the Sun was not represented anthropomorphically but symbolically.

Thus it appears that the Harappan religion embodied the worship of a horned deity and Mother Goddess, and the sacred *pipal* tree, attended by a ritual that included the baiting, leaping and sacrifice of bulls. From the seals, it is known that people performed singing and dancing in the religious processions which were organized during that period.

ART

There is very little sign of art for art's sake in the Harappa culture. No trace of ornamentation is found in houses and public buildings. Tools, weapons, vessels, etc., are quite plain and practical. Even the painted pottery has common place designs. Specimens of art are to be sought for in sculptures of stone and metal, in terracottas, in seals, in amulets and in other small objects.

SCULPTURES

Statuary is rare; only a few specimens have been discovered. Eleven pieces of stone sculptures have been unearthed at Mohenjodaro and two from Harappa. Most of them are mutilated or fragmentary. The stone used was ordinarily soft, either steatite, limestone or alabaster. Among these sculptures, the outstanding pieces are the bearded head and shoulders from the DK area at Mohenjodaro and two small figures from Harappa. A head and shoulder's bust of a bearded man is noticed wearing a robe decorated with applique trefoil designs. The first figure of Harappa is a tiny nude male torso of red sandstone, less than 4 inches in height, with a pendulous belly. JOHN MARSHALL pointed out, "Its chief quality lie in the refined and wonderfully truthful modelling of the fleshy parts. Indeed, it is far finer than any other Harappan stone sculpture." The second figure no larger is, made of a grey stone. It is a nude dancing figure, also made with twisting shoulders and on raised leg. These two statuettes from Harappa are still a matter of debate. PIGGOT and JOHN MARSHALL assigned them to the Harappan period, but D.H. GORDON[1] thinks that it is both rash and premature to attribute them to the Harappan culture. These statuettes are quite clearly the product of a wholly different art tradition; the properly authenticated sculptures of the Harappa culture being dull and insensitive.

Another outlier of the same group is a stone head discovered by STEIN at Dabarkot among Harappan remains. A further piece which suggests more remote Harappan affinities is the limestone male head from Mundigak. In some of these

1. *The Prehistoric Background of Indian Culture.*

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cases, there are indications that an inlay was used for decoration and for the eyes. Among the three animal figures of Mohenjodaro, one composite animal had the body of a ram with horns and an elephant's trunk.

Among the bronze sculptures from Mohenjodaro, the most significant specimen is a little figure of a dancing girl about 4½ inches in height. It is an exquisite figure with right hand on hips, arms loaded with bangles, head slightly tilted and covered with curly hair, the eyes large and half closed. A second figure of comparable size also came from Mohenjodaro. Among animals of bronze, one may mention a fine buffalo and a ram. The little models of bullock-carts and *ikkas* from Chanhudaro and Harappa are interesting examples of the skill in casting. These specimen testify to a remarkable degree of skill in bronze-working and suggest that this art was well-developed in the Harappan cities. Four unique bronzes discovered at Daimabad are ascribed to the Late Harappan period by some scholars.

TERRACOTTAS

The art of terracottas known as clay models developed during this period. These figures are of two classes—(1) human and (2) animal. The former is divided into male and female types. The number of female figurines is much in excess to that of male. Among the male terracottas, one small terracotta human head found at Kalibangan with a receding forehead, long, ovalish eyes, straight pointed nose, rather thick lower lips and firm chin is a remarkable one. It certainly recalls a similar head from Mohenjodaro, although other features are missing. Some male torsos are found putting either horns or horn-like appendages on heads. The male heads sometimes have small goatee beards.

Some terracotta female figures are nude except for a narrow girdle round the loin. Other female figures have heavy applique dress or ornament on their bodies. Seated women, and mother and child groups, are often among the most lively modelling. Their headdress is often quite elaborate. Sometimes the heads of female torsos are covered with either horns or horn-like appendages.

Terracotta female figurines have been discovered from the excavated sites of Baluchistan. They exhibit a minimum of modelling of the body, with heavy applied details, such as breasts, head and neck ornaments, etc., and eyes formed by deep incisions. They may be divided into a northern group, including those from such sites as Mundigak IV, Damb Sadaat II-III, Sur Jangal III, and Chhalgarhi, and a southern group typified by the Kulli types with more intricate ornamentation and eyes often formed with an incised dot around the pupil. A very different style is exhibited by two pieces, one from Chhalgarhi and another from Mundigak IV. No female terracottas have been recovered in excavations from Lothal and Kalibangan.

In comparison with the human figures, animals are found in large number. Among the animals, bull is portrayed realistically in majority. The other animals are elephant, rhinoceros, pig, monkey, goat, turtle, birds, etc. The mastiff cut from steatite are life like. The squirrels in faience sitting up with tails erect and munching something from beneath their forepaws and little monkeys with worried

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expression are charming. The most delightful of all is a bead carved with three monkeys sitting round in a circle, holding closely one another's waists with their arms. It is remarkable that throughout Baluchistan, from Mundigak or Quetta and Zhob in the North, to Kulli and Shahi-Tump in the South. Cattle depicted are almost always the humped variety. Other cattle are rare, and so are other animal species, although sheep, goats and birds are sometimes found. The terracotta figures of animals and birds have been found at Kalibangan. The terracotta figure of a bull or goat is notable and charming. The models of carts made of terracotta found at different archaeological sites prove that carts were used as means of transport.

SEALS

The number of seals so far discovered in the excavation of different sites seems to be around two thousand. These are of various types viz. square, rectangular, button seals, cubical seals, rectangular seals, cylinder seals and round seals. The craftsmanship of these seals is excellent. The technique of cutting and polishing these seals with white lustre was an invention unique to the Harappan people. These are invariably made of steatite and range in size from half an inch to just over $2\frac{1}{2}''$. They are of two main types, the first square with a carved animal and inscription, and the second rectangular with an inscription only.

The animal most frequently represented is a beast with a single horn, usually described as unicorn (*Ekaśṛiṅga*). In front of the beast stands a short decorated post, variously interpreted as a standard, manger or even an incense-burner. V.S. AGRAWALA[1] regards it as a banner, and it consists of three distinct parts, viz. (i) a round tapering shaft, (ii) a bow-like top, and (iii) a square or round *Vedikā*. The important question arises about its identification. It is a symbol or banner of deity. The cult of the pillar as a banner was associated with Prajāpati, Indra and many other gods including the *Trayastrimśa Devas*. It appears that the deity of the Indus Valley pillar was most probably Rudra. It is difficult to agree unless some concrete evidence is available. Other animals on the seals having a standard or manger are the elephant, the bison, the rhinoceros and the tiger.

Some seals with 'cult' motifs contain material of a religious character. The cult scenes indicate originality, but many of them are so small that they give little scope for artistic expression. On one seal, there is a human figure with hoofs, horns and tail of a bison, struggling with a beast probably tiger.

The uses to which seals were put are uncertain and have been the subject matter of various conjectures. They served the purpose of trade as they are found at different sites of Mesopotamia. According to some, they were used as money. But the large variations in the inscriptions speak against their use as money. According to some, these seals have religious character.

COPPER TABLETS

These are flat pieces of copper either rectangular or square. They are incised with inscriptions and figures of animals or men. The majority of tablets are well

1. Indian Art.

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made. They were first cast and then hammered smooth. J. MARSHALL[1] suggested them to be tablets but V.S. AGRAWALA[2] thinks them to be as coins. The view of V.S. AGRAWALA is not correct because these tablets are not of definite weight recognized by any society. The Indian coins seem to have started in the sixth century B.C.

JEWELLERY

The actual jewellery worn by the pepole included gold plaques both round and rectangular, plain gold armlets, conical ornaments for the ears and a great variety of stringed necklaces and girdles. A distinguishing feature of the Harappan art was the use of beads of gold, silver and other semi-precious stones, manufactured in a number of shapes and strung together as necklaces or girdles. The material of beads consisted of carnelian, chalcedony, agate, lapis lazuli, steatite, faience, shell, pottery and jadeite. Great technical skill is displayed in the manufacture of beads. The holes in the carnelian beads are well polished and testify to the great skill in boring such hard stones.

POTTERY

The Harappan pottery is bright or dark red and uniformly sturdy and well baked. It consists chiefly of wheel made wares, both plain and painted. The plain pottery is more common than the painted were. The plain ware is usually of red clay with or without a fine red slip. The painted pottery is of red and black colour. Several devices were employed by the people for the decoration of pottery. Circles, squares and triangles are the geometrical patterns. Figures of animals, birds, snakes or fishes occur on pottery. Another favourite device is the tree pattern. Plants, trees and *pīpal* leaves are found on pottery. A hunting scene showing two antelopes with the hunter is noticed on a pot-sherd from cemetry H. On a jar found at Lothal occurs a painting in which two birds are seen perched on a tree, each holding a fish in its beak. Below it is an animal with a short thick tail which S.R. RAO[3] is inclined to identify as a fox. He also refers to the presence of a few fish on the ground. It this indentification be correct, we have the kernel of the story narrated in the *Pañchatantra* of the cunning fox who flattered the crow and managed to pinch away the morsel from its mouth.

Harappan People used different types of pottery such as glazed, polychrome, incised, perforated, knobbed, etc. The glazed Harappan pottery is the earliest example of its kind in the ancient world. Polychrome pottery is rare and mainly comprised of small vases decorated with geometric patterns in red, black and green, rarely white and yellow. Incised ware is rare and the incised decoration was confined to the bases of the pans, always inside and to the dishes of offering stands. Perforated pottery has a large hole at the bottom and small holes all over the wall and was probably used for straining liquor. Knobbed pottery was ornamented on the outside with Knobs.

1. *MIC.*
2. *Indian Art.*
3. *Lothal and the Indus Civilization*, p. 100.

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The types of pottery include goblets, dishes, basins, flasks, narrow necked vases, cylindrical bottles, tumblers, corn measures, spouted vases and a very special type of dish on stand called offering stand or incense-burner. The big storage jars were discovered. The Harappan pottery seems to be of the utilitarian character fulfilling the needs of drinking, eating, cooking, worshipping, storage, etc. On the other hand, the painted designs on some pieces show a remarkable delicacy of line and artistic feeling, as for example the pot from Lothal.

At Harappa in cemetry H, grave pottery in two distinct strata was discovered. The upper one consists of one hundred and twenty pot-burials, and the lower one funeral pottery like water-pots, bowls, offering dishes, saucers, flat covers, flasks, round vases. The shapes of the burial pots are round, ellipsoid marked by parallel finger grooves on the lower portion. Peacock is common on the burial jars. A goat of large size with enormous horns is noticed. Other designs are stars, rayed orbs, wavy lines, continuous triangles, fish, leaves, plants and flying birds.

END OF THE HARAPPA CULTURE

One of the problems before the scholars concerning the Harappan culture is how it began to decline. From the excavations it is known that Harappan cities disappeared not at one but at different times. Sometimes after the decline of one city, the inhabitants migrated to another place where they built the different city. The identity of the successors of the Harappans is also a problem. Scholars have suggested various factors for the disappearance of the Harappan culture.

ARYAN INVASION

Some scholars assume that the Aryans came into India in about 1500 B.C., and wiped out the Harappan civilization and established their supremacy. S. PIGGOT[1] has tried to show that frequent invasions from the north-west of the barbaric Aryan tribes, unsympathetic to the urban civilization, were responsible for the destruction by fire as evidenced by the thick layers of ash found in the Rana Ghundai excavation. The hoard of jewellery and weapons at Mohenjodaro is said to indicate a period of insecurity during the last days of the city. The massacre of the residents of Mohenjodaro is sometimes attributed to the invasion of the Aryans. The flimsy constructions indicate a decline in the standard of civic amenities. The industrial slums are considered as a sign of decadance. The main body of evidence adduced by PIGGOT in support of his theory comes from Chanhudaro II where reminiscences of the Jhukar culture have been found. It is a settlement of 'squatters' among the Harappan ruins of IC phase of Chanhudaro and has a curious and distinctive assemblage of material equipment such as pottery head-rests, circular stamp-seals of pottery and faience.

M. WHEELER[2] opines that it is the cemetery H people at Harappa, identified as Aryans, who were responsible for the destruction of Harappa. Three cemeteries were found at Harappa, cemetery R 37, Cemetery H and Cemetery H I. It has been sometimes suggested that the uppermost Cemetery H I represents the

1. Prehistoric India, pp. 210 ff.
2. The Indus Civilization, p. 82.

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culture of the Aryans and as it immediately supervenes cemetery R 37, which represents the Harappan culture, it shows that the Aryans came, conquered and destroyed the Harappa culture and squatted upon the site of the devastated city. This is the view advocated by L. WOOLLEY, though controverted on the basis of depositions.

S.R. RAO[1] examined briefly some of the arguments. The Harappan empire was vast and the important cities and towns such as Harappa, Mohenjodaro and Lothal must have been administered very efficiently. Any attack on the villages lying on the outskirts of the vast empire should not be supposed to indicate the downfall of the empire as a whole. Small villages such as Rana Ghundai, situated on the outskirts of the Harappan empire, might have been subject to sporadic attacks by hill tribes, but this should not lead one to the conclusion that all the cities and towns including Harappa, Mohenjodaro and Chanhudaro were destroyed by the barbaric tribes. It is only when the political and commercial centres of an empire are attacked and destroyed that the invaders can be said to have been successful. The introduction of new elements at Chanhudaro II need not necessarily mean that the Harappan settlement was destroyed by the Harappan forces. On the other hand, the flood-borne stratum overlying IC phase of Harappa clearly shows that the destruction of Chanhudaro IC was due to flood.

In the absence of any substantial material evidence left by the invaders of Mohenjodaro, the invasion is more imaginary than real. It is possible that the inhabitants might not have had time enough to take away their hoarded jewellery or copper tools and weapons while fleeing to escape from destructive floods. At the time of evacuation, the death of a few hundred persons in a large city like Mohenjodaro is not unexpected.

Regarding WHEELER'S view, there is no shred of evidence to show that the cemetery H culture was that of Aryans. Cremation was the normal method of the disposal of the dead in the Vedic period and the burial which is referred to in the *Rigveda* was only a survival of a by-gone age. There is thus no archaeological evidence to show that the Aryans destroyed the Harappan culture in a few years by 1500 B C.

FLOODS

S.R. RAO[2] holds the view that there is positive evidence at Lothal, Rangpur, Desalpar, Bhagatrav and Chanhudaro of the destruction of the Harappan settlements by flood. The debris-layers and eroded platforms at Mohenjodaro and Harappa may point out similar causes of destruction. At Harappa, Mohenjodaro, Ropar, Desalpar, Lothal, Rangpur and Bhagatrav, there is absolutely no evidence of any settlement by a people who belonged to a group culturally different from the Harappans and who were directly responsible for the destruction of the former. Even at Harappa, there is a gap. The hiatus between the end of the Harappan settlements and the reoccupation of the site by the Painted Grey Ware folk at Ropar and

1. *AI*, 18-19. 2. *Ibid.*

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Alamgirpur proves that there was no settlement immediately after the Harappans left the sites. Wherever there was any immediate reoccupation of the site at Rangpur, Lothal and Bara, it was the Harappans themselves who came back to settle down once again.

M.R. SAHNI[1] cites the high hill of silt at Budh Takkar as evidence of a great flood of long duration in the Indus Valley. Similar evidence in the form of a 4 ft. thick deposit of silt over the Harappan occupational debris at Kolh near Lothal has already been mentioned. MACKAY'S remarks regarding the destruction of Chanhudaro confirm that a flood must have been the cause for it. Wherever the duration of the flood was short as at Rangpur, Lothal and Bhagtrav, the Harappans reoccupied the site immediately after the recession of the flood waters. But Desalpar and the Indus Valley sites had to be abandoned owing to the long duration of the flood.

PROGRESSIVE DESSICATION IN SIND AND BALUCHISTAN

The progressive dessication in Sind, Baluchistan and Western Rajasthan is considered to be the cause of the evacuation of the Harappan cities. Those, who believe in the changeability of climate, hold that the desert conditions seem to have grown gradually during the last 3000 or 4000 years. It is known that Sind, Baluchistan and the adjoining parts of Rajasthan were wooded, and had a much more favourable climate in prehistoric times. The use of burnt bricks for building and the presence of well-designed drainage system at Harappan cities indicate that the climate was fairly humid. Even elephants lived there. On hydrographical, zoological, botanical, archaeological and architectural grounds RAIKES and DYSON Jr., and FAIRSERVIS argue that no climatic change of any major proportion has occurred compelling people to evacuate their cities.[2]

INTERNAL WEAKENING

An internal weakening of the Harappa culture is an evidence in the uppermost levels of Mohenjodaro itself. People were less prosperous, civic authority was weakening and trade was declining. It appears that the civilization had spent itself up. But this story is not repeated in all regions of the Harappan 'empire'. S.R. RAO has shown that at Rangpur and other sites in Gujarat, the mature Harappa did not disapper but degenerated ĩnto an impoverished local culture. There is a possibility that the Harappa culture survived in the upper Ganga Valley in a degenerate form. Driven from its homeland and deprived of its trade and prosperity, it perhaps led a straggled existence in some destitute tillers of the soil, wailing to lose its identity in the mainstream of Indian Culture.

SURVIVALS OF THE HARAPPA CULTURE

The Harappan culture is epoch making in the history of India. After its decline, people migrated to other regions with their crafts and knowledge and influenced the

1. 'Bio-geological Evidence Bearing on the Decline of the Indus Valley Civilization', *Journal of the Palaeontological Society of India*, I (Lucknow, 1956), pp. 101-107.
2. H.D. Sankalia, *Prehistory and Protohistory of India and Pakistan* (Old edition), p. 176.

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subsequent civilizations. The survivals of the Harappan culture are noticed in different spheres.

POTTERY

Some of the motifs, designs, shapes and forms found in the Harappan pottery are noticed influencing the pottery of Chalcolithic period. The pottery Black-on-red, Black-on-cream wares, and Painted black-and-red found at different places in Chalcolithic period have some affinity with the pottery of Harappa. The dish-on-stand and certain other forms of dishes of Harappa continued during the Post-Harappan period.

SCRIPT

Some scholars like LANGDON, HUNTER, R.B. PANDEY[1] and D.C. SIRCAR[2] suggest that the Brāhmī script seems to have been derived from the prehistoric Harappan script. The graffitti marks found on several prehistoric objects resemble the symbols of the Harappan culture.

COINS, WEIGHTS AND MEASURES

A.D. PUSAKLER[3] thinks that Punch-marked coins, with their symbols reminiscent of the Indus Valley script, and with their standard of weight conforming to the weight system of Mohenjodaro constitute an important survival of the Indus Valley dating from be 400 B.C. The die-struck and cast varieties of ancient Indian coins appear to be indebted to the Indus Valley for their form. Against this, it may be pointed out that these symbols are not found on the Punch-marked coins of Paila and Golakhpur hoards which are of early date. Further, it may be said that these prehistoric symbols are of general nature. They may occur on the both by mere chance. The Harappans adopted the definite system of weights and measures. Cubical weights seem to be prevalent. Even in subsequent period, definite weights and measures were adopted for the purpose of exchange in connection with trade.

SOCIAL PRACTICES

At Lothal in some pits, two bodies were placed side by side. It is a joint burial, and S.R. RAO[4] thinks it to be a custom of *Satī*. To describe the Lothal twin burials as *Satī* is not proper but it is an anachronism. It is ceremonial burial of the wife or servant or dependants after the husband or the master. At Lothal, gamesmen with heads of a ram and ox are indeed interesting in themselves, but also take back the antiquity of similar pieces in the game of chess. These gamesmen might belong to the game of chess or a game very similar to it.

Some *Āyurvedic* medicines of the indigenous system of India may be traced to the Indus Valley Civilization. Pieces of coal black discovered in excavations have been identified with *Śilājīta*. Several little fish bones stored in pottery and the

1. *Indian Palaeography*, p. 50.
2. *Inscriptions of Aśoka*, p. 25.
3. *The Vedic Age*, p. 197.
4. *Lothal and the Indus Civilization*, p. 149.

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horns of deer and antelope were valued for their medicinal qualities. Coral and leaves of *neem* tree were possibly used as medicines.

RELIGION

The worship of some Harappan gods, goddesses and symbols survived in later period. The worship of Mother Goddess was popular during the Harappan period. The *Ṛigveda* refers to Pṛithvī and Aditi which are akin to Mother Goddess. Afterwards it was known under various names such as Mātri, Ambā and Kāli. The male deity of the Harappan period was regarded as the proto-type of the historic Śiva by J. MARSHALL. This male deity is identified with Rudra of the Vedic period. The baetylic stones and ring-stones found at Harappa are indentified respectively with *Liṅga* and *Yonī* stones. The phallic worship may be traced from the Harappan period. Goat sacrifice has been depicted before the Mother Goddess in one of the seals. The goat sacrifice has survived in the worship of Sakti, another form of Mother Goddess in which the sacrifice of animals is the most characteristic feature. The practice of *Yoga* may be also traced from the Harappan period. The animal worship and tree worship of the Harappan period survived in later times. The fire worship practised at Lothal and Kalibangan during the Harappan period became a feature of the religion of the subsequent civilizations.

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CHAPTER XI

CHALCOLITHIC CULTURE OF INDIA
(*C.* 1750—1000 B.C.)

The Harappa Culture is generally supposed to be followed by Chalcolithic Culture. The urban traditions of the earlier culture disappeared, and the subsequent tradition is marked by rural economy. People lived generally in mud houses in villages. They were farmers and cultivated land and domesticated animals. At the chalcolithic sites, a few objects of copper in small quantities began to appear together with pottery. Whether these few copper objects were locally made or imported does not matter. The use of copper is the leading characteristic of Chalcolithic Culture. This Chalcolithic Culture is relatively less prolific in metal. It never achieved urbanisation. Probably it could not produce the agricultural surplus required for the development of specialised metal-crafts. Along with copper, generally lithic objects also continued to be in use. Though the Chalcolithic Culture shares a common level of food economy and technology, different regions have their own peculiar features and they differ in ceramic traditions because of environmental conditions. The inclusive time spread of this culture is from *c.* 1750 B.C. to 1000 B.C.

A large number of chalcolithic sites have been discovered in the valleys of the rivers, and this shows the wide spread of the culture. The mounds of the chalcolithic sites are sometimes inhabited, sometimes deserted, or in some cases cultivated. The chalcolithic cultures of India may be divided into six regional groups: (1) The Ahar-Banas Chalcolithic Culture, (2) Chalcolithic Culture of Madhya Pradesh, (3) Northern Deccan Chalcolithic Culture, (4) The Neolithic-Chalcolithic Culture of the Deccan, (5) Chalcolithic Culture of Gangetic *Doab* and (6) Eastern Chalcolithic Culture. The main excavated sites Ahar, Bagor and Gilund of the Banas Culture; Kayatha, Maheshwar, Navadatoli, Nagda, Avara, Manoti and Eran of Madhya Pradesh; Prakash, Bahal, Chandoli, Jorwe, Nevasa, Inamgaon and Nasik of Northern Deccan; Piklihal, Brahmagiri and Maski of the Deccan; Bahadrabad, Ambakheri, Hastinapur and Atranjikhera in the Gangetic Doab; Lothal, Rangpur, Somanath and Rojdi of Saurashtra and Chirand and Pandu Rajar Dhibi of the East give a fairly good picture of Chalcolithic India. We have evidences to show the mutual contact among these Chalcolithic Cultures of different regions.

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THE AHAR OR BANAS CHALCOLITHIC CULTURE

The Chalcolithic Culture of South-east Rajasthan is called 'Ahar' Culture after the principal and well-known site Ahar (Ahad), a small suburb of Udaipur.[1] At this place, a big mound called Dhulkot, about 500 m. long, 275 m. broad and about 12.8 m. high, was excavated. Stratigraphically and culturally, it was divided into two main periods, I and II, each having three phases a, b and c. The principal pottery type of this culture is the Black-and-Red Ware everywhere. As there is complete absence of microliths, H.D. SANKALIA[2] called this culture as the Copper Age culture. It is also called by the name of Banas Culture because several other sites of this culture are found on the banks of the Banas and its tributaries in the Districts of Udaipur, Chitor and Bhilwara.[3] The beginning of the Ahar Culture may be placed about 2000 B.C. The one common trait, which binds the Bagor (Districts Bhilwara) Microlithic Culture and Ahar Culture, is the distinctive pottery Red, Grey and Black-and-Red with paintings in white. Though this Mesolithic or Microlithic site had a much earlier beginning, (*C.* 4500 B.C.), still it was flourishing when Ahar was first founded in a period assignable to about 2000 B.C.

The factors due to which people settled here are various. A hill girt valley of this type was chosen for security purpose. There was sufficient rain for drinking and cultivation. The enough forest was meant for wild animals forming the prime necessity of life. The finding of copper ore in some of the rocks attracted them. For building houses, stone was easily available.

HOUSES

At Ahar, remains of stone-and-mud houses have been discovered in excavations. Their foundation walls are of stone. That masonry—the art of laying stones was known to them. The walls were made with mud or mud-bricks. Timber was used for pillars and beams which supported the roof, generally sloping. The roof was thatched with bamboos and ocasionally covered with grass and leaves. Some of the big houses were 30′ × 15′ while smaller houses have a range between 22′ × 17′ and 10′ × 9′. There were two ways for constructing the floors by mixing clay with gravel and by usiug hard burnt clay. Among the structures of Gilund,[4] two are important. One is a new parallel-walled mud brick structure 100′ × 80′, and another is of kiln burnt bricks. Such a building built of kiln burnt brick of a size 14 × 6 × 5 inches in Chalcolithic period is not noticed anywhere except in the Indus Valley. At Gilund and other sites, the houses were made of mud bricks and not stone because it is not easily available.

The houses at Ahar were furnished with *Chūlhās* or hearths for cooking. Some of the *Chūlhās* are quite big and they indicate that some houses had large families, and cooked two or three dishes together in equally large vessels. Probably, they were used in ceremonial purposes at the time of big gatherings. In one house, there were six ovens (*chūlhās*) in a row. It is possible that they could be used for smelting

1. *I.A.R., 1954-55*, pp. 14-15; *1956-57*, p. 8, *1957-58*, pp. 28-44.
2. *SPPIP*, p. 413.
3. *I.A.R., 1956-57*, p. 8; *1957-58*, p. 45; *1958-59*, p. 45.
4. *Ibid., 1959-60*, p. 41.

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copper or such industrial purpose. More frequent than ovens (*chūlhās*) were saddle querns, and clay baking pans. These clearly indicate that grinding of grain and baking of bread were practised by the people.

GRAINS

About the grains, it is certain that rice was included in the diet of the people because abundant impressions of these on potsherds have been found from phase A, period I. Wheat also must have been known and eaten, because it was used at this time in the neighbouring region of Malwa as it was found in the excavated sites at Kayatha, Navadatoli, etc. About other cereals, we are not definite. People also used non-vegetarian food because from the kitchens of their houses, bones of the animals such as fish, turtles, fowl, cow or ox, buffalo, goat, sheep, deer and pig have been found.

POTTERY

There were several types and varieties of pottery used by the people, but the principal one was Black-and-Red Ware which comprises bowls, dishes-on-stand and small globular jars. It has a smooth, sometimes shining or lustrous surface in various shades of red, tan, chocolate and orange. Made of well-levigated clay, thin or thick, it has a metalic ring. Its form 'dishes-on-stand' and fabric are believed to have been inspired or borrowed from the Harappans. Ahar's contact with contemporary cultures of Saurashtra and Malwa is proved because this Black-and-Red Ware has been found in the excavated sites. The Black-and-Red Ware reached the Deccan very late. According to H.D. SANKALIA, these small goblets also characterise the earlier and Baluchi culture. This proves that there was contact between Rajasthan and Iran in early times. As this ware was hardly available to the common men the Red Ware was used in much quantity. Both were table wares as they were used both for eating and drinking. The storage vessels were of Red Ware, with the lower portions left rusticated. Their tops or upper portion rim, mouth, neck and shoulder were beautifully made, but their lower portion was not only plain but also intentionally made coarse by the application of sand, because probably the vessels were kept buried in the ground or because they were meant for rough use as cooking.

The other types of pottery found were painted black, plain, burnished grey, red and a few polychrome ware sherds too. In IB, the 'Stone Ware' with dish-on-stand and dishes continues. The 'Stone Ware', the buff and cream slipped wares seem to be imports. The buff and cream slipped wares of this place have affinities with those of Amri and Nal. Generally, there are the same fabrics and types of pottery found at Gilund. The typical Navdatoli cream-slipped ware with designs like dancing figures and spotted animals are found in the topmost levels of Gilund whereas at Navdatoli, they figure in period I and II. Fragments of strap handles and cut-spouted bowls found both at Gilund and Navdatoli indicate their mutual contact.

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COPPER TOOLS AND WEAPONS

The total absence of stone tools and weapons in the excavations suggests that the inhabitants must have relied mainly upon copper or its alloys which is found in abundance in the neighbourhood of Ahar. Copper, which is locally available, was evidently smelted at Ahar from the very beginning of its settlement and might have formed the basis of its economy. Probably, it was the magnet which drew the earliest colonisers at Ahar and other sites in the Banas Valley and made them live there for several years. Only four or five copper axes, one knife blade, a copper sheet, a bangle and two rings have been found. The people might have used these for chipping stone, cutting up the caracasses of animals they hunted and dressing their skins, for domestic and agricultural purposes. Copper bangles and rings served the purpose of ornaments. Ahar people rely solely on copper, but people at Gilund and other sites rely partly on copper and partly on lithic blades.

It should also be noted that not only Ahar but at a site Khurdi (Parbatsar Tehsil, District Nagpur) now in the heart of the desert without any stream in the vicinity has yielded a copper hoard. This includes a flat copper celt, barcelt or square sectioned chisel, concavo-convex thin sharp-edged Indian *Paraśu* (axe) like sheets and a complete large bowl with a channel spout. The last is identical in size with that which was found more or less complete at Navdatoli.

Another trait of this culture is the terracotta beads with incised geometrical and animal patterns found so far both at Ahar and Gilund. This gives an individuality to the Ahar Culture. No other chalcolithic or early historic site has also yielded specific spindle whorls as discovered here. These spindle whorls and beads of terracotta are said to have remarkable resemblance with Troy specimens. At Nagda, the incised terracotta beads and spindle whorls also look alike, though there is no identity in design. Terracotta figurines of bulls with prominent and long horns and gamesmen with a variety of heads have been discovered at Gilund, and they resemble those of Kayatha. This may prove the prevalence of the bull cult among the people.

CHALCOLITHIC CULTURE OF MADHYA PRADESH

A large number of Chalcolithic sites have been discovered in the valleys of the Chambal, the Narmada and other rivers of Madhya Pradesh. Excavations at some of the chalcolithic sites such as Kayatha, Maheshwar, Navadatoli, Nagda, Avara, Manoti, Eran, Azad Nagar and Besnagar brought to light the stratified chalcolithic layers along with their respective antiquities. No doubt these excavated sites have their own peculiar features, but they give a fairly good picture of chalcolithic Madhya Pradesh. Among the different kinds of painted pottery, painted Black-on-Red ware remained predominant, and it is found in abundance at all sites. It was not confined to Madhya Pradesh, but it is found to have crossed the boundary and reached Khandesh and the heart of Maharashtra. Along with pottery, lithic tools specially parallel blades, copper objects, beads, grains and terracotta figurines are also associated with this culture. Among the chalcolithic sites, the earliest seems to be Kayatha dated 2000 B.C.

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SETTLEMENTS

From the excavations of some sites, it would appear that these chalcolithic sites were founded on black soil. The black soil itself is a weathering in *situ* of the brownish alluvium owing to thick vegetation which had to be cleared. These settlements were generally clusters of mud huts though at Manoti,[1] we find baked brick structures; at Nagda, the houses[2] were built of mud bricks. At Manoti, a high rectangular platform of sun-dried bricks of different dimensions was raised in order to protect the habitation from the floods of the Chambal. The people also erected a huge defence wall of similar bricks, nearly eleven feet in width and at least ten to twelve feet in height. Inside the wall, more brick structures were located. At Nagda, there were massive structures of mud and brick, mostly for residential purposes, though one of them is a bastion of rampart. The discovery of mud defence-wall at Eran[3] is very important. It is made of black and yellow clay. It enclosed the semi-circular habitation area from the south, other sides having been enclosed by the river. Originally, the wall had a basal width of about 30.50 meters and the existing maximum height of the wall is 6.41 meters. Discovered immediately to the south of the mud defence wall, and adding another line of defence in that direction, was an ancient moat.

Plan of the Houses

No regular plan of the houses could be discovered at these chalcolithic sites except at Maheshwar and Navdatoli. The houses here were adjacent to each other. Between a row of four or five houses. there is a narrow passage. These houses were framed by thick wooden posts, and round these were put bamboo screens, which were then plastered with clay from outside and inside. The houses were of different shapes, circular. square and rectangular. The size of these houses varies. Sometimes, a circular hut was only three to four feet in diameter, and it is doubtful if it were meant for habitation. Such small huts have been used for storing grains, hay, etc. The size of the largest rectangular house was twenty feet by forty feet. Normally, the size of a house was ten feet by eight feet, and not more than four persons could live in such a house.

The floor was made of clay mixed with cowdung. It was made smooth, firm, and insect-proof by spreading lime on the black soil or yellow silt. If there were depressions, the hollows were filled up with black alluvium, or sometimes the burnt debris of the earlier period was spread and plastered with lime. At Avra[4] and Eran[5], the floors were made of rammed yellow clay mixed with *kankar*. Sometimes burnt clods of clay were also crushed into the floor. The charcoal pieces found in the floor may indicate their intentional use. The walls of the houses were made of a closely laid series of wooden or bamboo posts and covered on either side with mud. There was an interwoven bamboo screen between the two principal layers

1. *I.A.R., 1959-60*, p. 25.
2. *Ibid., 1955-56*, pp. 11-14.
3. *JMPIP*, V, p. 28.
4. *ibid.*, IV, pp. 18-40.
5. *Bulletin of Ancient Indian History and Archaeology*, I, p. 32.

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of the mud wall. Wherever the walls were burnt, the impressions of these screens and posts have been left in burnt lumps of clay and lime plaster. The walls were also plastered or washed with lime. How these houses were roofed has not yet been known. They were probably made with bamboos and reeds, traces of which would not be left as there were reported destructions. But if they were made of clay and supported by wooden posts or matting, there is some evidence to suggest that some of the debris may belong to the roof as well.

These houses were provided with *chūlhās* for cooking purposes. The houses at Navdatoli had a *chūlhā*, one or two-mouthed. The existence of one mouthed as well as two mouthed *chūlhās* in the same settlement may indicate the social or economic status of the occupants. On a two mouthed *chūlhās*, two dishes can be prepared simultaneously while the one mouthed meant for one dish was used by the poor people. Only small faggots could be placed in these *chūlhās* because their walls are low. Like Navdatoli, the *chūlhās* of the houses at Eran have three arms, two side ones, and a broader one in the centre. The additional '*hola*' in one *chūlhā* from Eran was meant for an extra cooking vessel. At Azad Nagar, near Indore, a child burial in house was found. The child was buried in north-south direction with head towards the north.[1]

Earthen Pots

These houses were furnished with small and large earthen pots for storing, cooking and drinking. Generally, these were wheel made. The large storage jars were strong and sturdy but mainly decorated with an engraving or applique work along the neck. The most remarkable pottery vessels are cups, bowls and dishes. A large number of them have stands. These vessels are decorated with many designs. The inhabitants had a large number of vessels which, according to their fabric, shapes and designs, fall into distinct groups associated with a particular period.

CERAMICS

Kayatha Ware

Kayatha[2] Ware known after the type site 25 Km to the east of Ujjain is said to be the earliest in this region, and it is placed between 2000 and 1800 B.C. Its genesis suggests some affinity with the Sothi or the pre-Harappan or the Early Harappan, according to one interpretation. It has three distinct ceramic industries. Its principal pottery was a sturdy ware having broad zones of thick chocolate slip, usually from lip to shoulder, sometimes upto the base, and with painted patterns executed in violet. Shapes included jars with globular profile and wide flaring mouth, and bowls having thickened incurved rim and carinated shoulder. The majority of vessels in this ware had ring bases. Vessels with disc

1. *Prāchya Pratibhā*, pp. 3 ff.
2. *I A.R., 1967-68*, p. 24.

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bases were also present in small numbers. The rest painted buff ware, of well-levigated clay and fine fabric, was another distinguished industry. The third ceramic industry known as 'Combed Ware' comprised plain red ware without slip or wash, with incised decorative patterns. Only birds and dishes were represented in this ware.

The Black-and-Red Ware

The Black-and-Red Ware seems to be an import from Ahar where it occurs in profusion, and it is dated 1800—1200 B.C. It was made on the inverted firing technique. In Kayatha,[1] the people using this ware arrived, and lived from 1800 to 1600 B.C. As Avara[2] and Manoti[3] were not at a great distance from Ahar, it is found at the lowest level, and in plenty. At Navdatoli,[4] this ware, comprising mostly bowls and cups, was confined only to period I. It has been traced also at Nagda[5] and Eran[6]. From Rangai, near Besnagar, three kinds of pottery namely red, Black-and-Red and grey-and-red ware discovered.[7]

Malwa Ware

The most common is a Red Pottery painted with black designs. Since this is found throughout Malwa, it is called the 'Malwa Ware'. This occurs as a major pottery fabric from the very first occupation and runs through the entire chalcolithic habitation at Navdatoli.[8] However, in the earliest period only certain designs and shapes figure, both becoming more varied later. The most remarkable is the advent of the channel-spouted bowl with its characteristic designs round the rim on the outside, and the figure of a man—warrior with a matted dishevelled hair, constricted waist, and a spear-like weapon in his right hand. At Nagda[9] and Eran[10] also, this pottery remained dominant, and was excavated at the lowest layer. At Kayatha,[11] Manoti[12] and Avra,[13] it appears just underlying the Black-and-Red Ware of Ahar culture.

White Slipped Fabric

Another important fabric is the white slipped one. It was associated with the first two periods only at Navdatoli,[14] but disappeared afterwards. It is found in small numbers. Though the white slip is a distinguishing feature, the fabric is not uniform in texture. The shapes are more varied than in Black-and-Red Ware. In addition to a large number and varied types of bowls or cups, there are bowls and

1. *I.A.R., 1967-68*, p. 24.
2. *JMPIP*, IV, p. 36.
3. *I.A.R., 1959-60*, p. 24.
4. *SPPIP*, p. 454.
5. *I.A.R , 1955-56*, p. 11.
6. *Bulletin of Ancient Indian History and Archaeology*, 1, p. 35; *I.A.R., 1960-61*, p. 13; *1963-64*, pp. 15-16.
7. *Prāchyā Pratibhā*, IV, 2, p. 38 ff. The encavations carried out at Rangai yielded material which takes the history of the Chalcolithic people to about 19-18th century B.C.
8. *EMN*, p. 83.
9. *I.A.R., 1955-56*, p. 11.
10. *Bulletin of Ancient Indian History and Archaeology*, II, p. 35.
11. *I.A.R., 1967-68*, 24.
12. *Ibid., 1959-60*, p. 24.
13. *JMPIP*, IV, p. 27.
14. *EMN*, p. 199.

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dishes-on-stands, and a water vessel like *lotā*. A band of running antelopes and dancing human figures seem to be characteristic designs in this fabric. A small number of sherds have been also recovered from Avra.[1]

Jorwe Fabric

In period III at Navdatoli, a new fabric called 'Jorwe,' named after the site in the Deccan has been discovered. It is a greyish black ware. It has a well backed core with a metallic ring, and a mat red surface. It was in existence along with the Red Ware. A limited number of shapes and designs figure in this ware such as carinated bowls, tubular spouted pots, and narrow high-necked (though comparatively few in number) water pots with a stereotyped geometric designs and the graffiti. The tea-pot like bowls were used probably for some sacrifice or ritual. A vessel identical in size and shape, but in copper or bronze, was found at Parbatsar.[2]

Other Types of Pottery

The coarse Red and Black Ware sherds have been found all over Malwa in the Deccan. Though small in number, this ware by its finish and peculiar type of vessels indicates some definite and limited use in the chalcolithic period. The incised ware, though small in quantity, had a definite place in the life of the people. Incised decoration is generally confined to storage vessels, usually of a large size, but it is also found on small vessels of a specialised type. It remained confined to the two lower most layers at Avra,[3] and about a dozen sherds have been recovered. The Tan Ware appears to be rare both at Maheshwar,[4] Navdatoli[5] and at Avra.[6]

Grey Ware

In the Chalcolithic phase, in association with the black painted red and white painted Black-and-Red wares, Grey Ware in large quantities has also been recovered at Eran.[7] This ware was used continuously by the people from 1750 B.C. to 700 B.C. The thinner sherds of this ware are usually of finer fabric. It seems to be different from the Painted Grey Ware in the Gangetic valley, nor has it any similarity with the Neolithic Burnished Grey Ware of South India. From Bhind District,[8] some fragmentary sherds of Grey Ware have been collected which seem to have some similarity in fabric, at least with the Chalcolithic Grey Ware at Eran. The supposed grey ware consists of jars and bowls, with the same kind of paintings as in the Black-and-Red ware. This grey ware is no other than the Malwa ware, while the white painted Black-and-Red ware was found to bear graffiti marks, but the occurrence of the channel spouted bowl in this ware is indeed noteworthy.

Occasional sherds of the Painted Grey Ware, have been discovered in the core of the rampart at Ujjain,[9] also. It is of a later date because of the paucity and

1. *JMPIP*, IV, p. 28.
2. *SPPIP*, p. 459.
3. *Ibid.*, p. 459.
4. *JMPIP*, IV, p. 28.
5. *EMN*, p. 84.
6. *JMPIP*, IV, p. 28.
7. *Bulletin of Ancient Indian History and Archaeology*, I p. 36; *I.A.R., 1960-61*, p. 13; *1963-64*, pp. 15-16.
8. *IP.*, p. 229.
9. *SPPIP*, p. 433.
10. *I.A.R., 1955-56*, p. 11.

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simplicity of painted designs in comparison with the Painted Grey Ware of the Gangetic valley.

Designs on the Pottery

These various types of pottery were painted with beautiful designs and show the skill of the artists. Amongst all the painted pottery found in India so far, that at Navdatoli has given us the largest repertory of designs.[1] These designs primarily appear on the outside, above the belly, preferably on the shoulder, neck, or round the rim. The inside decoration is confined to the inside only of the rim of an everted or flaring rimmed vessel, so that it could be seen. The decorative designs are primarily geometric, and include simple bands, lattice, squares and diamonds, hatched triangle and parallelograms, 'ladder' or flag, circles within circles, and circle with rays. Besides this, they have taken the motifs from the animal and vegetable world. They have delineated the different kinds of deer, tigers or panthers, and even a lion, dogs and cats, tortoise and fish, peacock, geese and other birds, a few leaves and flowers, and what looks like a sunrise or sunset.

SOCIO-ECONOMIC CONDITIONS

A study of the above pottery shapes, types, varieties and designs gives an idea of the socio-economic condition, new influences, emergence of new fashions, and the likely contacts with other cultures in India and outside.

CULTIVATION OF DIFFERENT KINDS OF GRAIN

Besides the manufacture of different types of pottery with many designs, the people started to produce various kinds of grains at an early period in this area. This was very significant, and clearly proves that they were not barbarians or semi-nomadic, but had settled at some particular place. No site in India except Navdatoli has yielded so many cereals, legumes, oilseeds and fruits.[2] That wheat was known to them from the very beginning of their settlement is clear from the excavations at Kayatha and Navdatoli, where it was found in large quantity. Barley had also been found. Though rice was absent in Phase I, it was present in Phases II—IV. From the beginning, the inhabitants used five kinds of legumes viz. (i) *masur* or lentil, (ii) *urd* or black gram, (iii) *mung* or green gram, (iv) *vāṭāṇā* (Hindi *baṭatā*) or mutter or green peas, and (v) lathyrus; besides four other leguminous weeds, the identification of which is not certain. The food was probably cooked with linseed oil, the grains of which are found from the earlier phase. The fruit stones identified with Ber (*Bor*) and *Amla* have been discovered. There is also another unidentified fruit type as well. The distribution and antiquity of wheat, lentils and linseed, suggest Western Asiatic contacts, whereas rice is believed by most authorities to be indigenous to India.[3]

1. *SPPIP*, p. 433.
2. *Ibid.*, p. 400.
3. Rice impression is found at Lothal. See Ghosh, S.S., *Indian Forester*, 1961, p. 295.

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Methods of Cultivation

Wheat was probably cultivated with a plough, as it was in the pre-Harappan and probably in the Harappan. Ploughing might have been done with digging sticks. It is quite possible that a number of heavy stone rings which have been found, were probably cut with sickles set with stone teeth, as thousands of such stone tools have been found. They crushed them either dry or wet, in deep, basin-shaped stone *paṭas* called saddle querns, with the help of a pounder or rubber. A number of such saddle querns were found both at Navdatoli[1] and Avra.[2] They show concavity in the middle of both the longer sides.

FOOD

Food was cooked on hearths or *chulhās*. In the debris of their houses, remains have been found of bull, pig, sheep, goat, deer and occasionally also horse. All these seem to be domesticated and eaten. But since the grains were varied and plentiful, they relied less on animal food, and hence their remains are fewer in number in comparison with those found in other regions. Economically they seem to have been essentially farmers, but they might have lived by hunting and fishing. Beef was the most popular item of food, and the next important being pork and venison.

METAL

People knew copper and bronze, but these were used sparingly. The objects of this region show improvement over the Banasians in metal forging. In Kayatha[3] were found 2 thick copper celts and a chisel. In their craftmanship, the copper celts of about 1.5 c.m. thickness, double sloped edge and of a beautiful cast shape are superb and unequalled in the whole range of Protohistory. At Avra,[4] the most noteworthy of the excavated finds, is a small bronze celt recovered in the topmost chalcolithic layer. Some objects in the shape of simple handleless axes, fish hooks, pins and rings, have been found at Maheshwar and Navdatoli.[5] Possibly in a later phase, they used daggers or swords with a mid-rib, as suggested by a fragment found at this place.[6]

With the emergence of metal tools, the blades remained dominant at the expense of the early stone tools, because of their greater utility. They served the daily needs of cutting vegetables, scraping leather, and piercing stones. They were manufactured from nodules of agate and chalcedony found abundantly in this region. They were made out of long parallel-sided flakes. A special technique was employed for their manufacture. They vary from 1.75 to 0.50 inches. These small, delicate, stone blades, were hafted in a bone or wooden handle.

1. *EMN*, p. 233.
2. *JMPIP*, IV, p. 28.
3. *I.A.R., 1967-68*, p. 24.
4. *JMPIP*, IV, p. 38.
5. *SPPIP*, p. 463.
6. *Ibid.*

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ORNAMENTS

People were fond of ornaments which were made of different material. At Kayatha,[1] people used copper bangles, round in section, with featureless terminals. In one house alone were found 29 copper bangles, kept in a pot. This unusually large numbar suggests that the Kayathans were also affluent, as were the Harappans. Bangles and rings of copper and clay have been found at Maheshwar-Navdatoli,[2] and they were used as ornaments. The ear ornament at Navdatoli is simple in design, with trace of a stem at the back.[3] A thin gold disc (diameter 2.5 c.ms, weight 20 grams), was found at Eran,[4] but the exact purpose of it was difficut to guess. A large number of beads made of terracotta, shell, steatite, jasper, agate, carnelian and other stones, have been discovered at Maheshwar,[5] Kayatha,[6] Avra[7] and Eran,[8] and a few unfinished beads were also recovered. This indicates that bead making was a flourishing local industry at these places. They are of different shapes and sizes, being small, medium and large, and of spherical, biconical, square, cylindrical and barrel shape, in addition to the arecanut-shape. These beads must have been strung into necklaces which were worn by the people. Bangles, rings, lids, amulets and several other fragmentary objects of shell found at Maheshwar and Navdatoli,[9] show that it was a local industry.

TERRACOTTAS

People decorated their houses with different kinds of terracottas. Besides decoration, they served some other purposes also. A large number of unique figurines of bulls discovered at Kayatha[10] are either naturalistic or highly stylized. The stylized forms, depicting the hump and the horns, had either a rounded or pedestalled base. At Navdatoli,[11] an interesting specimen of a tiny bull with a tail shown in an applique method, has been recovered. Terracotta bulls have been obtained from Avra[12] and Eran[13] also. The bird figurines from Navdatoli[14] are remarkable. These are flat based beaked figures.

Pottery discs were found at Navdatoli,[15] Avra[16] and Eran.[17] Of all the terracotta objects, these were the most abundant. They conform to a graded series of fixed weights, and may, possibly, have been used as weights. Some might have been used as skin rubbers. Solid stone balls were found to stand in simple ratios with one another, and perhaps they served the purpose of weights too. People also used skin rubbers, which are actually the barrel-shaped pieces.

1. *I.A.R., 1967-68*, p. 24.
2. *SPPIP*, p. 461.
3. *EMN*, p. 204.
4. *Bulletin of Ancient Indian History and Archaeology*, p. 34.
5. *EMN*, pp. 177-190.
6. *I.A.R., 1967-68*, p. 24.
7. *JMPIP*, IV, pp. 36-37.
8. *Bulletin of Ancient Indian History and Archaeology*, p. 37; *I.A.R., 1960-61*, p. 13, *1963-64*, pp. 15-16.
9. *EMN*, p. 287.
10. *I.A.R., 1967-68*, p. 24.
11. *EMN*, p. 203.
12. *Bulletin of Ancient Indian History and Archaeology*, p. 37.
13. *JMPIP*, IV, p. 34.
14. *EMN*, p. 203.
15. *Ibid.*, p. 195.
16. *JMPIP*, IV, p. 35.
17. *Bulletin of Ancient Indian History and Archaeology*, p. 37; *I.A.R., 1963-64*, pp. 15-16.

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Terracotta wheels are also very important. Two specimens came from Navdatoli.[1] One is biconvex in outline. It is important from the point of view of tracing the development of hubbed wheels. It denotes the intermediate stage between single hubbed and double hubbed wheels. A toy-cart wheel was also available at Eran.[2] Terracotta wheels, with or without hubs, were obtained from Avra.[3] The most important find of this place consists of a perforated wheel showing eight spokes painted on it. The spokes are red. No painted wheel of this kind has so far been recovered from any of the other Indian sites. Though no wooden wheels were found, these terracotta specimens should imply the existence of large wooden carts, which served as means of transport and communication.

Other terracotta objects were found such as human and animal figures, seals, spouts and crucible lids. One disc-like object of bone found at Navdatoli,[4] seems to be the spindle whorl for the spinning of cotton. Potter's or cloth dyer's stamps recovered from Avra,[5] were perhaps meant for dyeing.

RELIGION

From the indirect evidences, some ideas about the religious beliefs of the people may be gathered. The discovery of a large number of terracottas at Kayatha, Avra and Eran may prove the possible existence cult of revering of the bull. The bird figurines from Navdatoli seem to be the dove figurines associated with the cult of Mother Goddess, as suggested by MACKAY and V.G. CHILDE on the basis of the evidence from Crete, Sumer and the Indus valley. A small applique female figure on the storage jar found at Navdatoli may be the worship of Mother Goddess of Western Asiatic type. The man with matted dishevelled hair holding a spear-like weapon in his right hand—apparrently a warrior—painted inside the base of a channel-spouted bowl may be some warrior like deity. Some vessels found were meant for storing water or some liquid type ghee for performing sacrifice and ritual[6] at Avra and Manoti also.

NORTHERN DECCAN CHALCOLITHIC CULTURE

The excavated sites of Jorwe, Nevasa[7] and Daimabad[8] in Ahmednagar District and Chandoli,[9] Songaon[10] and Inamgaon[11] in Poona District, Prakash[12] and Bahal[13] furnish information regarding the Chalcolithic Culture of Northern Deccan. Geographically, this region is a transitional zone between the Deccan and Madhya Pradesh. Its cultural assemblage shows a comingling of the cultural elements of

1. *EMN*, p. 192.
2. *Bulletin of Ancient Indian History and Archaeology*, p. 37.
3. *JMPIP*, IV, p. 34.
4. *EMN*, p. 224.
5. *JMPIP*, IV.
6. *SPPIP*, p. 462.
7. *Report on the Excavations at Nasik and Jorwe*; *I.A.R., 1954-55*, pp. 5-7, and *1955-56*, pp. 8-9.
8. *Purātattva*, No. 3 (*1969-70*), p. 35.
9. *Chalcolithic Chandoli*, Poona, *1965*.
10. *Songaon Excavation 1965*, Poona, *1969*.
11. Inamgaon, 'A Chalcolithic settlement in Western India', *Asian Perspectives*, Vol. XIV, 1973, pp. 139-146, and *Illustrated London News*, August *1971*.
12. *I.A.R., 1954-55*, p. 13.
13. *Ibid., 1956-57*, p. 17.

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the Deccan and Madhya Pradesh. In comparison with the Madhya Pradesh Chalcolithic Culture, it seems to have retained too much of the features of Neolithic Culture of the Deccan. There seem to be some differences in pottery types and fabrics and house plans in this culture.

SETTLEMENTS

Generally, this Chalcolithic Culture was riverine confined to the basins of the major rivers like the Godavari and Pravara, and tributaries such as the Ghod and the Mahalungi. Such earliest remains of habitation are found on black soil. It is believed to be weathering *in situ*. The weathering was caused by thick vegetation as a result of a damper climatic phase. Thus when the Chalcolithic people entered the river valleys, there must have been thick forests. Sometimes, the settlement was concentrated in the semi-arid region. Even it is noticed taking place on the earlier remains. These settlements are regarded as colonizations because their occupants possessed the knowledge of arts and crafts, and there is no evidence of indigenous development.

HOUSES

No structural remains of Chalcolithic Period were discovered at Prakash. As the excavations at Daimabad, Chandoli and Songaon were restricted in nature, not much details about the houses are available. The remains found at Nevasa and Inamgaon give an idea of the plan of the houses. Both at Nevasa and Inamgaon, pit-houses were discovered. Among such pit-houses at Inamgaon, one is over 8 feet (3 metres) in diameter, and has post-holes around it. Even a step has been cut into the side to get into it. Many 'Malwa sherds' were found inside it. These pit-house dwellers seem to be the first settlers at these sites. Afterwards, people started to construct rectangular houses. Of the eight houses so far exposed at Inamgaon, the biggest measured about 8.50 M. (about 30 feet) in length and 3.30 M. (about 12 feet) in breadth. At Nevasa, there was also evidence of large structures, one measuring 45 × 20 feet, though the normal size was 8 × 7 feet. These houses had dwarf walls with rounded corners. The roofs were supported by wooden posts, usually flat. Some of the houses had well-defined courtyards. Elaborate provision was made to drain away the rain water. Both at Chandoli and Songon, lime floor of the house was found. A regular passage of 5 feet was left between two houses at Inamgaon.

People of Inamgaon possessed the knowledge of building something like a mud-rubble fortification, and an embankment for storing the river water and a highly advanced kiln to bake their pots and pans. This kiln had a separate fire-chamber and air ducts to serve as channels for hot gases. The occupants may be differentiated from the subsequent ones judged on the basis of pottery, and probably they did not bury the dead in the house.

The latest occupants known from the excavations of Inamgaon lived in round or circular houses, and these vary in size from 2 M. to 4.30 M. One of the best preserved had an inner diameter of 3 M. It had a 40 cm. thick wall, retaining traces of nine post-holes, 50 to 55 cm apart. One of the post-holes was found

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rammed with stone chips. Two groups of four flat stones and a burnt surface possibly of a hearth, were found inside the house. The floor was made of black clay and plastered successively with a clay solution. The roof was probably conical in the round houses. The largest circular house found so far had 16 post-holes all round. All these 38 small and big circular houses were laid out very closely. In the western quarter, we have found houses of craftsmen, potter, lime-maker and goldsmith.

POTTERY

The above houses were equipped with different types of pottery for eating, drinking, storing and burying the dead. The earliest pottery seems to be the Pale Grey Ware with white painted designs found at Prakash and Nevasa. It has bowls, *loṭās* and globular vessels of various types. Prakash, Daimabad, Chandoli, Songaon and Inamgaon possessed many forms and fabrics of the Malwa ware. There were large rimless globular vessels with or without tubular spouts, straight and concave-sided bowls, bowls with a pinched or channel spout, and small *loṭās*. All these have red slip and mostly painted in black. The paintings are geometric and naturalistic. The, naturalistic designo, comprise animals of various poses. The finest is the jungle-*cum*-religious scene depicted on a large globular vessel found at Daimabad. The upper portion shows a muscular human figure with two deer approaching it as if enchanted, and peacocks in between. The lower depicts three tigers with highly elongated bodies and legs. Phase I represents early Chalcolithic settlers of Daimabad with characteristic pottery known as the Savalda Ware. Along with it are found in this phase Burnished Grey Ware.

The most dominant ware known in this region is Jorwe Ware known after the type site. It is made from well levigated clay, giving a metallic ring, painted in black on matt red surface. At Nevasa, the common vessels are bowls of varied sizes, and *loṭās* (globular vessels) for storing and pouring liquids. The carinated bowls and the spouted pots found at Nevasa are characteristic. *Thālīs* are conspicuous by their absence in this ware. The decoration is mostly geometric; though delineation of a dog and deer is realistic. Though important additions are made by Chandoli and Songaon, Inamgaon contributed not only new shapes but also showed slow changes within the basic Jorwe forms and fabrics. The bowl with *svastika* design is unique. One cylindrical vessel is exceptionally tall. One large pot has an engraving of a cart drawn by two humped bulls. The spouted pot has a painting of a boat. There is also one narrow mouthed vessel. The designs on the vessels are monotonously geometric though a few lively or realistic animal forms are found. Of these, the hind portion of a dog or dog-like animal is the most realistic. Like the burial urns and huge jars (some with graffitti) at Tekalakota, storage jars of a great variety have been found at Inamgaon. Several sharpeners made out of only Jorwe pot sherds were found at Nevasa and Inamgaon. Their exact purpose is not known. They seem to have been used as burnishers of pottery and skin rubbers.

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The other types of pottery are found in small quantity. The incised and the applique decorated ware was found both at Prakash and Daimabad. The Lustrons Red Ware is met with at Prakash, Bahal and Chandoli. The last mentioned place also gives a few pieces of cream slipped ware.

CLOTHES AND ORNAMENTS

From the excavations of Nevasa, Chandoli and Inamgaon, it is clear that there was the existence of cotton, flax and silk clothing. Since threads of these materials were used for stringing the copper-bead necklaces at Nevasa and Chandoli, this suggests the spinning of silk and cotton. Then garments of all these material seem to have been made but we have not discovered their specimens.

Ornaments as usual consisted of necklaces, ear pendants, bangles, anklets and rings. Beads of semi-precious stones such as agate, jasper and carnelian, terracotta, shell and steatite and less frequently of copper and rarely of gold were used for stringing necklaces. An almost complete example of copper beads round the neck of a dead child was found at Nevasa. Bangles were generally of copper, burnt clay and bone or ivory. Rings were worn on the fingers of the hand.

TOOLS AND WEAPONS

A few copper tools were discovered at these Chalcolithic sites. Chandoli gave two chisels, one celt, one dagger, three fish hooks and one copper rod. An antennae hilted dagger from Chandoli has been compared with similar swords from Fatehgarh (U.P.) but there are a few points of difference. From Nevasa were discovered a chisel, a plate, a rod and a pot. The axe from Nevasa has a peculiar triangular blade broken at its narrow top. From Jorwe are reported six flat celts. Besides stone tools such as anvils, mullers, hammerstones, polished axes, chisels, adzes and balls have been found from Nevasa, Chandoli and other sites. As copper was rare and dear, these stone tools appear to be of much use among the people. Stone sickles made with thin blades of chalcedony embedded in a wooden or bone handle were evidently used for other household activities—for cutting fruits, vegetables and working on wood and ivory. Boat-shaped querns were also manufactured locally for grinding grains as well as stone axes.

FOOD

For food, the inhabitants of these Chalcolithic villages largely depended upon beef and venison, to some extent on buffalo, fish and mussel-shell as known from the remains of these animals. According to recent studies, chalcolithic inhabitants of Nevasa were acquainted with *Bos* sp. buffalo, sheep/goat, pig, horse/donkey or wild ass, small cat, three types of antelope, nilgai, four horned antelope, blackbuck, deer, sambhar, swamp deer and domestic foul. Some of these animals might have been consumed as food.

The grains known to be cultivated here are wheat, lentil, barley and perhaps millets. Wheat occurred for the first time at Songaon. At Inamgaon were found barley, wheat, lentil, green gram, horse-gram (*kulatah*), common and grass pea, Indian jujube and wild date. At Nevasa, vegetable cells and epidermal hairs from

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the stem of millet or allied grasses besides fungal spores in the earth sticking to the copper beads were noticed.

TERRACOTTAS

Terracottas have been discovered in these excavated sites. At Nevasa was found one of the largest terracotta figurines of a female with a short conical head but no face, short, stumpy, outstretched arms, small breasts, featureless lower part flat but was otherwise featureless. It had a concave base, evidently made for fixing on (clay) base.[1] Similar but a smaller figurine was also found. At Inamgaon, several terracotta female figurines were found. These are nude with a head and without head. The later ones are seated on a bull. A clay box (not more than six inches in length and about two inches broad in the centre, with the nude goddess within is remarkable. Another headless clay female figurine was shown standing on the back of a bull. A few male figures were recovered.[2]

A theriomorphic vessel at Nevasa and Chandoli is significant.[3] It is infact a bull but in place of the face and the head, we have an bottle-like opening. The rest of the body shows a small hump, and a short tail, but instead of four legs, it was endowed with a wheel on each leg or foot. The latter have now disappeared, and only the broken ends of the sockets survive. The body of the bull bears oblique strips in black over a crimson-red slip. This evidently suggests either a red embroidered or simply painted cloth which covered the bulls body, or direct painting over the body.

These terracottas throw some light on the positive religion of these chalcolithic people. They used to worship Mother Goddess and male gods. The worship of bull in some form or other was there because it played an important part in the economy of these people. Nothing positive can be said about the function of the two *kundas* oval and oblong found in this region.[4] It is more than probable that they served some ritualistic purpose. Such *kundas* were also discovered at Kalibangan,[5] Amri[6] and Navdatoli.[7]

BRONZES

Besides terracottas, four unique bronzes were discovered at Daimabad—namely an elephant, rhinoceros, buffalo and a chariot driven by a man to which a pair of bulls is yoked.[8]

BURIALS

Of the 131 burials found at Nevasa and a few at Bahal, Chandoli, Daimabad, Songaon and 50 at Inamgaon, it is clear that dead bodies were buried under the

1. *I.A.R., 1959-60*, p. 28, Pl. XXXI B.
2. *SPPIP*, p. 488.
3. *Ibid.*, p. 489.
4. *I.A.R., 1960-61*, p. 20.
5. *Ibid., 1962-63*, p. 30 Pl. L VII R-B.
6. Casal, *Fouilles de Amri*, Vol. II, Figs. 27 and 30.
7. *EMN*, p. IV, B and Fig. 56.
8. As the rim of a pot incised with three Harappan characters was discovered at Daimabad, these bronzes may be ascribed to the Late Harappan period.

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floor of the houses. After exposing the body and allowing the flesh to dry up, the skeleton of the child was placed usually in two urns, but occasionally, they were three, four or five. The grown-up children and adults were buried in specially made pit, in storage jars with extra coverings and right on the lime floor of the houses. While in all cases, the skeletons were kept in an extended but in one case, it was in a flexed pose. These were placed in a north-south direction. The great number of child burials at Nevasa 126, Chandoli 23, Songaon 4, Daimabad 3 and Inamgaon 50 prove that if the number is the criterion, the infant morality was very great. It seems that the chalcolithic people of this region borrowed it from the Southern Neolithic Culture.

Pots such as bowls, spouted pots and globular vessels (*loṭās*) used for eating and drinking, and beads found along with the dead bodies prove that people were provided with things required by them during the life time at the time of their burial. The fact that some children were found buried wearing necklaces of copper beads at Nevasa and Chandoli and shell at Songaon proves that they belonged to a wealthy family. The dead body of one child seems to have been annointed with oil and cowdung.

THE NEOLITHIC-CHALCOLITHIC CULTURE OF THE SOUTH

The excavations carried out at several sites viz. Brahmagiri,[1] Maski,[2] Piklihal,[3] Sanganakallu,[4] Tekkalakota,[5] Hallur,[6] Utnur,[7] Kupgal[8] and T. Narsipur[9] give an idea of the Neolithic Chalcolithic Culture of the people—their houses, arts and crafts, food habits and burial customs. In this region, Neolithic Culture was followed by the Neolithic-Chalcolithic Culture in about 1800 B.C. At Brahmagiri, Piklihal and Tekkalakota, copper occurred in the upper strata of the Neolithic occupation because of the contact with the Chalcolithic Cultures of the Northern Deccan. This Chalcolithic Culture was continued to be known along with the original connotation. Neolithic because many ground tools were found here in comparison with the North Indian Chalcolithic Cultures in which only a few are noticed.

HOUSES

The excavations at different sites enlighten us about some plan of the houses and settlement pattern of these people. As known from the excavations at Tekkalakota, Sanganakallu and Hallur, there were generally one room circular houses with a low mud plinth strengthened by a covered split bamboo or other locally available flexible reed and creeper screen. The slopping thatched roof of these houses is conical. The floors were (occasionally) thinly plastered with lime, but the walls

1. *AI*, No. 4, pp. 180-310.
2. *Ibid.*, Vol. 13, p. 1.
3. *Piklihal Excavations*, Hyderabad, 1960.
4. *Excavation at Sanganakallu*, Poona, 1969.
5. *The Stone Age Hill Dwellers of Tekkalakota*, Poona, 1965.
6. *A Report on Hallur Excavations*, Bangalore, 1971.
7. *Utnur Excavations*, Hyderabad, 1961.
8. *Ashmound Excavation at Kupagal*, Poona, 1966.
9. *A Report on the Excavations at T. Narsipur*, Mysore, 1971.

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were probably not. The structure at Sanganakallu and Tekkalakota were built on a murram surface. At Sanganakallu, a *chūlhā* made with three stones was found. Storage jars are found placed in these houses. Some idea of the sense of sanitation can be had from the fact that there were pits found in the habitation area containing animal bones, besides ash and pottery.

POTTERY

These houses were furnished with some peculiar pottery fabrics and types. The Burnished Grey Ware is a distinctive trait of this Neolithic-Chalcolithic Culture. Besides there were other fabrics attributed to the cultural intrusion from the north. There is the Black-and-red or Red and Black Ware – occasionally painted in white. Only bowls and small dishes are represented, and these two occur exclusively as grave goods. In addition, there is small percentage of painted Black-on-red Ware at almost all the sites, but particularly at Piklihal, Tekkalakota and Sanganakallu. The common types of vessels found are dishes, bowls, *loṭās*, small and large water vessels and storage jars. These served most primary needs of the household such as eating, drinking and storing respectively. The pot types such as spouts, small jars with constricted neck and a lamp having flat ovalish surface, with a central depression for a wick and incised design motive have been borrowed because of the contact with Jorwe and other Northern Chalcolithic Cultures.

STONE TOOLS AND BLADES

Ground and polished stone tools and blades were recovered in large number from the different sites. These have been grouped under various heads primarily on the basis of the functions, and secondarily on the form of the object. Among these tools, the axes are the most important and common. Other stone tool types are adzes, chisels, scrapers, wedges, pointed tools, picks, pointed hammers, querns, hand-hammers, sling stones, grooved hammerstones, mace-head or ring-stone, etc. Lithic blades are made of chert and chalcedony.

METAL OBJECTS

Along with stone objects, metal objects are poor in comparison to those found in Northern Chalcolithic sites. Besides it is not sure whether they are locally manufactured or imported. So far a few copper objects have been found at Tekkalakota, Brahmagiri, Maski, Piklihal and Hallur. At Tekkalakota, the copper axe was found in Phase I, and a copper spiral, a piece of copper wire, a copper ring with three coils, a copper nailhead and a copper piece belong to Phase II. At Brahmagiri, a chisel and a rod were found. A copper chisel and fragments of the rim of a small copper bowl occurred in Phase II. At Hallur, three objects were found from deposits of Phase I. One of them is a simple fish-hook, but the remaining two are unusual. There is a small miniature, double-edged axe, made on a thin sheet of copper with a broad edge and concave middle. Since it is very small and delicate and it has been rightly regarded as a cult object. The second object is a flat miniature axe with a broad cutting edge, concave sides and a narrower handhold.

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The surface specimen from Brahmagiri has a triangular outline, with straight sides, and a very small or narrow butt. The object is like the present day cobbler's *rāpi* for cutting and scraping leather.

The ornaments which these people wore seem to have been primarily necklaces. This may be inferred from the fact because the small variety of beads of shell, steatite, agate, carnelian, terracotta, gold and copper found here. Whether these were used as ear pendants or for some other purpose, it is difficult to say. Of these, the earliest are of shell. Those of steatite occur in Phase II. They might be made from the local material. The steatite beads are usually of disc type, whereas those of carnelian, etc., are of barrel, bicone, facetted or circular varieties. Tekkalakota and Brahmagiri have produced a peculiar or unique ornament of gold and copper respectively, whereas at T. Narsipur a simple spherical gold bead and a biconical copper bead were found. The former comes from the earliest level, and consist of solid coils in the centre, with trumpet mouth-shaped solid terminals ending in opposite directions. The weights of two from the smaller excavation are 7.49 and 5.37 gms. respectively. These ear-ornaments could have served as ornaments. The discovery of these gold ornaments would take the history of gold in this region back to about 2000 B.C.

HEAD-RESTS AND EDGE-GROUND POTSHERDS

There are certain objects whose use or significance is not precisely known. A fragment of head-rest made of burnished grey ware was found at Hallur. The stem and base are missing. A head-rest was also discovered at T. Narsipur by BRUCE FOOTE. The head-rests were a regular feature of Egyptian burial furniture. This implies the cultural contact between ancient Egypt and Proto historic Deccan. These highly concave objects might have been used for keeping in an inverted position carinated pots, as at Inamgaon such head rest-like objects were found in a kiln. The objects known as Edge-ground potsherds were recovered from Hallur, Tekkalakota and Maski. They may be regarded as sharpeners or skin rubbers. These are also believed to be spindle-whorls. These seem to have been used by the potter as burnishers.

ART

People of this culture during this period gradually developed some aesthetic sense, and they are supposed to be the authors of the early rock paintings, bruising and etching in Andhra-Karnatak—as well as domestic art comprising painting and pinhole decoration on pottery. At Tekkalakota is bruised a magnificant bull on a rock and a human palm on a rock overlooking the terrace on Locality I. There are paintings in red ochre on various rock-shelters around these localities. ALLCHIN notes three kinds of paintings: (i) Paintings in white, usually a lime wash, (ii) Paintings in red over a white background and (iii) numerous paintings in red. The subjects painted or bruised, include bulls, the sambhar deer, the gazelle, sheep and the goat and the horse, stylized human beings, *triśūlā* but rarely trees and flowers. This tradition of painting and bruising is indicated by the occurrence of a rare decoration on a Grey Ware lid found in Phase I at Tekkalakota. Here have been

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depicted a peacock and three animals—a serpent, and two kinds of deer. Two of the animals can be compared with those shown in rock-shelters. It is possible that a few paintings might belong to the period of Neolithic-Chalcolithic Culture.

RELIGION

Some idea of religious beliefs may be gathered from the findings. Some terracotta bulls were discovered from Piklihal and other sites in Karnatak. There is no doubt that ox/cow was worshipped in various ways. The excavations at Utnur as well as Kupgal have shown that there were huge heaps of cow-dung which were probably ceremoniously burnt on specified occasions. At Hallur occurs a unique or rare bowl in phase 2, Period I. Made of a brown and black blotchy surface, it has a circular hole at the centre of the bottom. The interior is decorated with thick dots in red ochre at close intervals. This peculiar bowl and the decoration might have some religious significance.

DOMESTIC ANIMALS AND AGRICULTURE

It seems that the occupants of those sites were agricultural communities depending upon animal husbandry and cultivation of grains. These people were pastoral and kept large herds of cattle (cows and buffalos) and they played an important part in the life of these people. Their large number might also be inferred from the existence of several ashmounds, near or at these sites. These people cultivated grains such as *rāgi* (*Eleusine corocana*) and *hulgi* (*Dolichos biflorus*). It is possible that *hulgi* is indigenous whereas *rāgi* is believed to have come from Africa. If this is correct, it proves maritime contact.

BURIALS

After examining the data of burial practices at Tekkalakota, Hallur, Piklihal and others, it may be said that the adults were buried in specially dug pits in an extended position, in a north-south direction, though occasionally the east-west orientation also. As grave goods, a few pots and pans and sometimes stone blades or a polished axe were kept with the body. One of these pots was smeared with red ochre. Later on, the practice of burying the adult in multiple pots is noticed, and thus in association with black-and-red pots. The children were buried within the house floor and the adults nearby. This child burial was usually in one or two urns, placed horizontally face to face. The exception so far noticed is at Brahmagiri, and in one instance at Nevasa, where the urn is kept vertically.

CHALCOLITHIC CULTURE OF THE GANGETIC DOAB

Because of the fertile soil and heavy rainfall, this area was covered with heavy forest in very early times. The important excavated sites such as Bahadrabad[1]

1. *I.A.R., 1957-58*, p. 30; Archaeological Remains Monuments and Museum (A.S.I., Government of India, New Delhi) 1964, pp. 12-13.

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Bargaon,[1] Ambkheri,[2] Ahichchhatra,[3] Atranjikhera,[4] Alamgirpur,[5] Hastinapur,[6] and Noh[7] give us an idea of the Chalcolithic Culture of the Gangetic *Doab*. Ochre Ware, which is one of the earliest wares of the Chalcolithic age, is the characteristic of the culture. The Copper Hoards seem to form an integral part of the Ochre Ware Culture.

SETTLEMENTS

The Ochre Coloured Pottery (O.C.P.) has been found at different sites such as Bahadarbad, Ambkheri and Atranjikhera, but no habitation layers have so far been encountered in this horizon at these sites although at Ambkheri, a brick kiln and a hearth have, however, been found. The analysis of the antiquities indicates that the area had been flooded and water logged for a considerable time which was ultimately responsible for the end of this culture. Afterwards Black-and-Red ware people and Painted Grey Ware people gradually settled. Different floor levels with post-holes have been found, and they give an idea of the houses. The houses appear to be round, square or rectangular. Floors of the houses were made of clay mixed with silt, and sometimes they were also paved with river gravel. How the houses were roofed cannot be ascertained precisely. However, it appears that they were supported on wooden or bamboo posts. The houses seem to have been divided into two rooms, one of which probably served as the kitchen.

POTTERY

Ochre Coloured Pottery (OCP)

The main pottery types found in the Gangetic Doab are Ochre Coloured Pottery, Black-and-Red Ware, and the Painted Grey-Ware. The Ochre Coloured Pottery (OCP) is an accidental name because the pottery remained soaked in water for a very long time, and the slip came out immediately. Actually, it is a distinct red pottery. This pottery was first recognised by B.B. Lal while excavating the Copper Hoard sites of Bisauli in District Badaun and Rajpur in District Bijnaur. It was found in the lowest levels of Hastinapur. This pottery has also been reported from Bahadarbad in a possible association with the Copper Hoards. This pottery was also excavated at the sites of Ambkheri and Bargaon in Dist. Sahranpur; at Atranjikhera in District Etah, at Ahichchhatrapur (District Bardi) and at Noh near Bharatpur. The area of Ochre Coloured Pottery thus extends from Bahadarbad to Noh, a distance of 300 Km. from north to south and from Katpalon near Jullundur to Ahichchhatra, a stretch of about 450 Km. from west to east.

The Ochre Coloured Ware is individualistic in types and designs. It comprises bowls, vases, knobbed lids, dishes-on-stand and handles. The decorations primarily consist of incised designs such as triangular notches between parallel lines, wavy lines and rectangular lines making a check design. The types and fabrics in this

1. *I.A.R., 1663-64*, p. 45; *IP*, p. 128.
2. *Ibid*, p. 56; *1967*, pp. 53-54.
3. *Ibid. 1964-65.*
4. *Ibid, 1962-63*, ; *1963-64*; *1965-66*; *IP*, p. 142.
5. *Ibid., 1958-59*, pp. 50-54.
6. *AI*, No. 10-11, pp. 10-11.
7. *I.A.R., 1964-65.*

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pottery found at Bargaon, Ambkheri and Alamgirpur prove association with the Harappa culture. At Atranjikhera, the pottery showed incised designs not found at other Ochre Coloured sites. Noh has also yielded one sherd with incised decoration being similar to that found in the Ochre Coloured Pottery at Atranjikhera. Ambkheri, only a single culture site with no copper has yielded Ochre Coloured Pottery.

It is generally believed that Ochre Coloured Pottery people of this region are the authors of the Copper Hoards, but uptill now there is no positive and definite stratigraphical evidence. At the Copper Hoard sites of Bisauli and Rajpur Parsu excavated by B.B. LAL[1], no copper implements were found with Ochre Coloured Pottery. At Bahadarbad, the excavator could not establish direct association between the Ochre Coloured Pottery and the Copper Hoards which, though unearthed a little earlier, is believed by Y.D. SHARMA[2] to have come from the OCP layers. Similarly, a Copper Hoard unearthed at Narsipur near Roorkee has also yielded the OCP. The only indisputable evidence, however, of the association of the OCP with a copper implement to wit a copper ring of the type similar from Pondi and Bahadarbad, comes from the controlled excavation at Bargaon in District Sahranpur. Saipai[3] also gave evidence of the association of one of the three most characteristic tools or weapons of the Copper Hoard, viz. a copper harpoon. The evidence from Mitathal,[4] though not so definite, cannot be ignored. Here was also found a copper harpoon, almost identical with the one from Saipai, in addition to a flat celt, Bargaon-like ring, Khurdi, Daimabad like *Paraśu*. A copper hoard of six bar-celts was found while digging at Nandlapura[5] in Tehsil Chaksu, District Jaipur, Rajasthan. Though the celts cannot be put in a stratigraphical context, the presence of OCP sherds at the site is significant in view of the presence of OCP sites in the area.

The Copper Hoard Problem

Scholars differ about the authors of these Copper Hoards because these are unstratified, and they have no association with other artifacts. Besides Uttar Pradesh, these Copper Hoards have been found in Bihar, Orissa, Madhya Pradesh and Rajasthan. The copper objects of these hoards can be divided generally into eight types, namely, (i) flat celts, (ii) shouldered celts, (iii) bar-celts, (iv) rings, (v) harpoons, (vi) hooked spear-heads, (vii) antennae swords, and (viii) anthropomorphic figures of indeterminate use. In the Gangetic *Doab* of Uttar Pradesh, there are three main Copper Hoard types viz. harpoons, anthropomorphic figures and antennae swords.

1. *AI*, VIII, pp. 29-30.
2. *"Copper-Hoards and Ochre Coloured Ware"* Conference on Asian Archaeology, New Delhi.
3. Seminar Papers, ed. by Sharma, Y. D. *Puratattva*, No. 5, p. 46; *Antiquity*, XLVI, 1972 pp. 282-287.
4. *Journal of Haryana Studies*, Vol. IV, 1969, pp. 199-201.
5. *Man and Environment*, Vol. I, 1977, p. 63.

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V.A. SMITH and R. HEINE-GELDERN[1] equated these Copper Hoards with the Indo-Aryan Culture on the basis of typological considerations alone. He proposed that the Trunnion axes come from Transcaucasia, the axe-adze from the Danube and the antennae sword from the Koban region. He surmised that these artifacts came to India through Persia around 1200-1000 B.C. He further declared that the Copper Hoard Aryans, coming from the West, invaded India between 1200 and 1000 B.C., and destroyed Harappan Civilization.[2] In this equation, he was at first supported by S. PIGGOTT[3] (1944), but subsequently the latter proposed that they were perhaps the relics or the Harappan refugees (1950). B. and R. ALLCHIN[4] have also advocated Aryan association with the Copper Hoards but without much fresh evidence.

B.B. LAL[1] and S.P. GUPTA[5] have pleaded for an indigenous origin of the Copper Hoards. B.B. LAL associated these Copper Hoards of the *Doab* with some pre-Aryan tribal people. He pointed out that the Trunnian axe, the Fort Monroe sword, the socketed axe-adze and the axe had a westerly distribution, whereas the harpoon, the bracelet and the anthropomorph were confined to *Doab* and never occurred west of it. He has pointed out the possibility of these Copper Hoards being associated with the ancestors of the aboriginal proto-Australoids of India, represented today by the Mundas, Santhals, etc., inhabiting to this day the area wherefrom the hoards have been recovered. There is similarity in the shape of the bar-celt to the Neolitithic stone-celts found in the eastern parts of India, implying the existence of inspirational proto-type models in stone. The harpoons again are paralleled by weapon-shapes in rock-paintings in the caves in the Mirzapur District. The parallelism is tempting enough to encourage the suggestion of genetic connection between the prehistoric way of life and the later metallic equipments. He has also referred to the mention of flat-nosed *Nishādas* in the Vedic Literature whom the Aryans encountered in the Ganga plains, and has raised the possibility of the Vedic tribal name being a reference to the makers of the Copper Hoards.

B.B. LAL was supported by S.P. GUPTA[6] who distinguished two zones in the distribution area of the Copper Hoards : the eastern zone with simpler types and the central *Doab* with the advanced types. He also emphasised the typological links of the Copper Hoards with the Harappans, the Chalcolithic cultures and even the Neolithic cultures.

In the eastern Plateau zone of Bihar, only simple types like the flat celts and bar-celts occur in the Copper Hoards but in the Gangetic *Doab*, there are three main copper hoard types viz. harpoons, anthropomorphic figures and antennae swords. These three types alone are diagnostic of *Doab* zone as, first, they have been found together and can be ascribed to the Copper Hoards proper and secondly, typologically, they are distinctive. Thus, a division into the *Doab* zone type and

1. *JISOA*, IV, 1936, pp. 87-113; AI, 7, pp. 20-39.
2. *MAN*, Vol. LVI, 1956, pp. 136-40.
3. *AI*, 8, 173-184.
4. *The Coper Bronze Age in India.*
5. *AI*, 7, pp. 20-39.
6. *JBRS*, 49, 147 ff; 51 (parts 1-4); pp. 1-7.

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the Plateau zone type is justified both ecologically and typologically. According to D.P. AGRAWAL,[1] these Copper Hoards with their three distinctive implements truly reflect a hunting life and nomadic habits of the people. These Copper Hoards have no affinities with the Harappa Culture or the other Chalcolithic Cultures. The distinctive typology of the Copper Hoards indicates cultural isolation. The complete absence of pots and pans and lack of mounds belonging to the creators of the Copper Hoards further proves their hunting nomadic pattern of living. The Copper Hoards are a unique and probably isolated phenomenon in Indian prehistory. They probably represent the original inhabitants of the tangled, wooded country of the *Doab* before the Painted Grey Ware people started clearing the forests.

In size, shape and technique, these three weapons of the Copper Hoards are much finer and better than those seen in the otherwise advanced civilization. These advanced tools could not be of nomads and hunters. These were made for a society or people who had developed the art of making such well-developed weapons, probably by using local resources. These people were no nomads but lived in simple mud-walled (as well as sophisticated brick) houses, and had a repertory of pots and pans. This is definitely indicated by the excavation at Saipai and Atranjikhera. The existence of such spouted, handled and footed vessels does indicate a way of life which should be more sophisticated than the one found in prehistoric or historical cultures, and certainly not among nomads and hunters. That the Copper Hoard people had domesticated the ox should be expected, and probably it was used as a draft animal in a solid, two wheeled cart as well, besides ploughing. The other associated objects found with the Ochre Ware are stone balls, pounders, rubbers, querns and pellets of sandstone, and a chalcedony flakes[2]

S. PIGGOTT held that these Copper Hoards were perhaps the relics of the Harappan refugees. This view seems to be plausible because Harappan Culture survived in the Upper Ganges Valley in a degenerate form. People using Ochere Coloured Pottery (OCP) and Copper Hoards were probably the feeble descendants of the illustrious Harappans. After the collapse of the Harappan empire, people migrated from the Western Indian scene towards the more virgin and less exploited tracts of Eastern Ganga Valley. The late Harappan Culture of Western U.P. seems to be contemporary and is a close neighbour of the O.C. Ware, the two may often be found together, as it is likely to have happened at some sites such as Bahadarbad and Ambkheri. If even unassociated with the Harappan Culture, the Ochre Culture of Copper Hoards received influences from refugee Harappan communities moving towards the east from their principal stations.

Black-and-Red Ware

Besides the Were mentioned above, the next important pottery recovered from the Gangetic *Doab* is the Black and-Red-Ware. It was fount at Noh,[3] (District Bharatpur) and at several sites like Atranjikhera[4] and Alamgirpur.[5] Again, it has

1. *Asian Perspectives*, XII, *1969*, pp. 113-119.
2. *SPPIP*, pp. 399-400.
3. *I.A.R.*, *1963-64*, p. 28 and *1964-65* (Cyclostyled copy), pp. 1-64-65.
4. *Ibid.*, *1962-63*, p. 34; *1963-64*, p. 45; and *1965-66* (Cyclostyled copy), pp. 1-84.
5. *Ibid.*, *1958-59*, p. 54.

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been found from several sites in eastern U.P. Notable amongst these are Kausāmbi,[1] Śrāvastī,[2] Prahaladpur,[3] Rajghat,[4] Masaon,[5] Sohagaura[6] and several sites in District Basti.[7] It is noteworthy that on all these sites, it has been found in limited numbers and represents the earliest settled life in this region. The ceramics of Western U.P. are more akin to and partake some features of Ahar fabric. At Noh and Atranjikhera, it has been found in a distinct cultural horizon and is sandwiched between the OCP and PGW respectively. While at other sites, the Black-and-Red pottery bears white painting, the sherds at Atranjikhera have no painting. Although bowls dominate the industry, pieces of basin and dish also have been casually found. The associated pottery is coarse Black-and-Red ware, Black slipped ware and Red ware. These include vases, bowls, dishes and miniature pots and jars.

CHALCOLITHIC CULTURE OF THE EAST

The excavated sites such as Chirand, Sonepur,[8] Vaisali,[9] Maner[10] and Oriup[11] in Bihar, and Pandu Rajar Dhibi,[12] Mahisdal,[13] Nanur,[14] Haraipur[15] (Dist. Birbhum) and Thusipur[16] (Dist. Bankura) give an idea of the Chalcolithic Culture of the East. Black-and-Red Ware is the characteristic of the Chalcolithic Culture in the East.

HOUSES

Expcet floors, no remnants of mud or brick houses are noticed at Sonepur, Chirand and Pandu Rajar Dhibi. From this, it is inferred that people used to build their houses of perishable materials like reeds and split bamboos and got them plastered with mud. Floors of the houses were made of clay mixed with silt and sometimes were also paved with river gravel. At Sonepur and Pandu Rajar Dhibi, however, it was further coated with lime in order to make them smooth, firm and insect-proof. How the houses were roofed, cannot be ascertained precisely. However it appears that they were supported on wooden or bamboo posts. The houses seem to have been divided into rooms, one of which probably served as the kitchen. Ovens were found both at Pandu Rajar Dhibi and at Chirand.

POTTERY

The most popular pottery of the Chalcolithic Culture of the East was Black-and-Red Ware. The earliest, dating 1700 B.C. by C-14 has been obtained from

1. *The Excavations at Kausambi*, pp. 57 and 70-71.
2. *I.A.R., 1964-65*, (Cyclostyled copy) p. 180.
3. *Ibid., 1958-59*, p. 48.
4. *Ibid., 1962-63*, p. 41.
5. *Ibid., 1964-65*, (Cyclostyled copy) p. 1-76; *1965-66* (Cyclostyled copy), p. 1-92.
6. *Ibid, 1961-62*, p. 56.
7. These sites of this Ware have been located by the Banaras Hindu University.
8. *I.A.R., 1962-63, 1963-64*, pp-6.8; *1964-65* (Cyclostyled copy), p. 1-13.
9. *Ibid., 1956-57*, p. 19, *1959-60*, p. 14, *1960-61*, p. 5, and *1961-62*, p. 4.
10. *Potteries in Ancient India*, pp. 102-108.
11. *Ibid.*
12. *I.A.R., 1964-65*, (Cyclostyled copy), p. 1-85.
13. *Ibid., 1963-64*, p. 60.
14. *Ibid.*, 1963, p. 60.
15. *Ibid., 1964-65*. (Cyclostyled cpoy), p.1-83
16. *Potteries in Ancient India.*

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Chirand. This ware has been discovered from some other sites in Bihar such as Sonepur, Vaisali, Maner and Antichak, and it has survived for a long time. Long-necked jar, vase, bowl, dish and basin were the principal types which have been found in Black-and-Red Ware. Bowl is very common in this ware. Red Ware and Black Slipped Ware were associated potteries of this Ware. A few pieces of steel-grey Ware have been noticed at Chirand. A fairly good number of Painted Black-and-Red Ware potteries were discovered at Chirand and Oriup. From Sonepur, a few Black-and-Red Ware sherds were discovered with graffiti marks.

The inhabitants of the region of Bengal as known from the excavated sites used three main fabrics such as Black-and-Red Ware, Lustrous Red Ware and the chocolate-slipped Ware with paintings in white, cream, buff or black. No animal or human designs occur but geometric. The types include bowls, basins, channel-spouted bowls, dishes and stand, thick storage jars *loṭās* in red ware, lids and dishes.

The assembled antiquities indicate that people practised agriculture, hunting and fishing for their livelihood. Remains of charred rice have been found at Sonepur and Mahisadal. The impression of husk in the pottery fragments found at Pandu Rajar Dhibi was identified to be that of cultivated paddy. Presence of large vessels at various places suggest that grains were stored. Thus, it may be inferred that cultivation of rice, and wheat was practised. Large number of animal and fish bones have been found at different sites in association with hunting and fishing tools. These evidences prove that people were non-vegetarians. For hunting purpose, they used copper, bone and stone tools. Copper axes of flat socketless variety have been found at Mahisadal. Bone tools have also been found in large number which included arrow-heads of tanged and socketed varieties. A few blades and points have also occurred at Sonepur, Chirand, Pandu Rajar Dhibi and others. That fishing was also one of the main occupations is clear from a large number of bone fish-hooks (harpoons) found at Oriup. A fish hook of copper has also been recovered from Pandu Rajar Dhibi.

The terracotta figurines may be divided into two groups—human and animal. A torso of male figure probably in a dancing pose has been found at Pandu Rajar Dhibi. Another solitary example of a female figure, with prominent breasts, have come from Oriup. Among animal figurines, humped bulls were much popular, and and they also suggest that they were domesticated.

These people used different varieties of ornaments. Beads made of semi-precious stones have been recovered almost from all sites, and materials included carnelian, agate, chalcedony, quartz, crystal, etc. Beads made of steatite, faience and copper were rare. These beads must have been strung into different varieties of necklaces. Copper rings were found at Pandu Rajar Dhibi. Bangles made of copper have been found at Oriup, Pandu Rajar Dhibi and of bone at Mahisadal. Sonepur and Chirand have yielded copper wires which were probably used for making rings. Mahisadal has yielded bone combs. A few unique specimens for personal decorations i.e. copper-eye pencils have been found at Pandu Rajar Dhibi.

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Some of the terracotta beads may be identified with spindle whorls which bear testimony to their knowledge of spinning as well as weaving.

That copper smelting was one of the industries of this period is clear from the copper discovered in this region. As copper tools were rare, stone tools were used in large number at different sites in this region.

Some inference about trade may also be inferred. There were some sort of trade relations with the contemporary Chalcolithic Cultures as known from some objects. For transport of men and goods, wooden carts might have been used as terracotta wheels found at Prahaladpur would suggest. The use of copper was only possible when regular trade was organised. The tetrahedral objects found at Mahisadal have been identified as weights. If so, we may suggest that there was some kind of weight system. But meagre evidences show that barter system was practised. The people had to exchange their surplus products for metal, steatite, faience and other things of interest.

Some antiquities throw light on the superstitions, customs and religious beliefs of the people. A few post-cremation pit-burials and large urns containing bone pieces have been found at Sonepur. At Pandu Rajar Dhibi, both extended and secondary human burials were practised. Evidence known so far may suggest the Black-and-Red ware people originally cremated their dead bodies. The funerary goods associated with these burials may suggest a belief in future life. These customs of cremation may be studied in the light of Vedic literature. Probably bulls were regarded sacred and may be considered to be a cult-object. Worship of Mother Goddess and phallus was also practised by them. It may be regarded that they were the worshippers of fertility cult. Painted designs on pottery representing antelopes and stylized figures may suggest its association with some magic. Channel spouted or lipped bowls for basins, spouted vessels, three-legged perforated bowls, miniature sarcophagns, etc. might have been used for some ritualistic purposes.

CHALCOLITHIC CULTURE OF SAURASHTRA

The main excavated sites such as Lothal[1], Rangpur[2], Prabhas Patan[3], Somnath[4], Amra[5], Desalpar[6] and Rojdi[7] throw light on the Chalcolithic Culture of this region. The earlier brick houses of Harappan period seem to have given place to those of mud brick. The new pottery fabrics such as the Lustrous Red Ware, the Black-and-Red Ware with paintings in white and the Prabhas Ware came on the scene. Three main types of vessels occur in the Lustrous Red Ware such as, (1) the bowl, (2) dish and (3) jar. These have a thin wall and comparatively small size. The designs are painted in deep black usually over the half of the vessels, and include geometrical forms. Another distinctive ware, which came into prominance, is Black-and-Red

1. *I.A.R., 1954-55, 55-56, 56-57, 57-58, 58-59, 59-60.*
2. *A.I.*, 18-19.
3. *I.A.R., 1956-57.*
4. *Ibid., 1955-56.*
5. *Ibid.*
6. *Ibid., 1963-64,*
7. *I.A.R., 1958-59.*

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Ware. The forms include: (1) bowls with ring foot base and semi-circular or slightly tapering body with featureless rim, (2) bowls with carinated belly, (3) dishes with grooved rim, (4) and jar with high neck and projected rim. Besides, there were the Coarse Red Ware and Coarse Grey Ware. Both contain bowls, vessels with grooved stems, dishes and lamp, as well as a stemmed bowl with everted rim and carinated shoulder. This period at Rangpur is also noted for the increase in graffiti marks on potsherds.

Agriculture and cattle rearing were the main occupations of the people. Corn was ground into flour on stone querns with the help of grinders; for querns and grinders have been found. They are known to have grown rice, pearl millets, wheat and cotton. Spinning and weaving was practised by them because spindle-whorls of terracotta bear testimony to their knowledge of spinning. Fish-hooks and fish bones prove fishing as the occupation of the people.

The inhabitants reared the sheep, goat, humped and humpless bull, cow and pig whose bones or clay models have been found throughout the Chalcolithic phase of occupation. They domesticated the ass and probably horse and elephant too; peacock and deer which they liked most are found frequently on earthenware. Two clay models of horse have been recovered at Rangpur. It proves that horse was known to the people. Among the wild animals, the tiger, leopard and rhinoceros were known to the Lothal folk. Water birds including ducks are painted on the vessels in a highly stylized form at Rangpur.

These people had for their tools copper and bronze celts, pins, razors and knives throughout the Chalcolithic Period of occupation. The lithic implements comprise long parallel-sided blades of chert which were used as knives in early days.

Tubular micro-beads of burnt steatite and terracotta and faience beads were locally prepared, but other varieties must have been imported. Even steatite came from outside. Faience, carnelian, agate, jasper, shell and ivory were also used for making beads. Filigree-work was well-known to the goldsmiths, and they also prepared fine gold beads.

The art of modelling was highly developed. Terracotta animal figures especially bulls and horns are good examples of the art in the round, but there are only a few figures of human beings. The artistic sense of people can be judged from the decoration of the earthenware by paring, painting and burnishing. The pleasing colour scheme and the painted geometric and naturalistic designs are truly reminiscent of the Harappa culture.

Trade was well-regulated, the standard of weights was fixed. Cubical agate weights and spheroid weights of granite and dolerite were prevalent. For transport of men and goods, double-ox carts must have been in use. Excepting the camel, the usual beasts of burden were known. The horse came to be known by the beginning of the first millennium B.C. Terracotta cart frames and wheels with and without hubs have been found. The commodities must have been traded. The people had to sell agricultural products in exchange for metal, stone implements and many other things. Lothal was not only a port but also an industrial centre. Lothal imported steatite, chert, carnelian and gold from different places.

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RELIGION

Some circular enclosures of clay plastered with mud or lime were found to contain potsherds, ash, etc. They indicate a ritual involving domestic fire-worship. The terracotta bull figures found may be considered as the cult objects.

GRAFFITI MARKS

As many as 22 of the excavated potsherds at Rangpur[1] bear graffiti marks ranging in form from simple strokes to intricate geometric and naturalistic designs. The graffiti on potsherds show that some of the Indus symbols underwent modifications in course of time. The graffiti marks can be classified into three main groups, respectively comprising: (i) motifs of human forms, animals and birds, (ii) linear symbols evolved from the Indus signs and (iii) a combination of several linear signs.

ORIGIN OF THE CHALCOLITHIC CULTURE

The question of the origin and the authors of the Chalcolithic Culture is full of controversy because of various reasons particularly when no trace of writing was found in the cultural remains. There are certain peculiar elements in the make up of this culture. In some aspects, foreign elements are clearly visible. These elements sometimes have adapted with the local elements and gave rise to distinctive cultures in different regions. Various theories have been advocated by scholars about the origin of the Chalcolithic Culture.

WESTERN ASIATIC INFLUENCE

Some scholars[2] emphasize that the question of the origin of the Chalcolithic Culture should be considered alongwith the political and cultural backgrounds of Western Asia. The first quarter of the second millenium B.C. was a time of troubles, and of invasions by Indo-European tribes. These invasions led to the general break up of the Western Asiatic civilization, and resulted in folk movements and migrations of people towards the east. From the cultural point of view, the Chalcoltthic Cultures of Iran and the Western Asiatic regions are of greater antiquity and are richer and more elaborate. New types of tools, weapons and pottery came into existence, as is known from the archaeological evidence of Western Asia. It seems that the Harappan Culture and the Chalcolithic Culture of India gradually derived a diffusion of influences and people from Iran and other Western Asiatic regions.

FORMS AND FABRICS OF POTTERY

It seems that the forms and fabrics of the ceramics of the Chalcolithic Culture have some Iranian influence.[3] At Ahar, some vessels with animal handles, and vessels with peculiar shape, hollow bowl and applique and punctured decoration, ribs along

1. *A.I.*, 18-19, p. 113.
2. *IP*, pp. 157-173; *SPPIP*, p. 201, p. 281.
3. *IP*, p. 162.

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the neck and shoulder, grooved and incised patterns as well as rustication recall similar shapes and ornamentation on certain sites in north-eastern Iran, such as Shah Tepe, Geoy Tepe and Hissar. The channel spouted bowls at Navdatoli are matched with those from Necropole B at Sialk and Tepe Giyan I. The pedestalled bowls show close similarity with corresponding forms at Hissar III. The therimorphic 'bull like' vases from Navdatoli are similar to the vessels from Sialk. The occurrence of dancing human figures on a white slipped piece of pottery at Navdatoli recalls a similar vessel from the earliest period at Sialk in Iran. Besides, some painted motifs—human, animal, bird or geometric, also have echoes in the Iranian sites. Certain objects like head-rests made of burnished grey ware were found at Hallur, T. Narsipur and Inamgaon. The head-rests were a regular feature of Egyptian burial furniture. This implies a cultural contact between ancient Egypt and Protohistoric Deccan.

BLADE INDUSTRY

The blade industry[1] was one of the characteristics of the Chalcolithic Cultures. This particular technique of making blades is itself an adaptation from West Asia, having originated in the Jericho region, and being transmitted through settlements in the Fertile Crescent and the Iranian Plateau to the Indian Chalcolithic Culture.

COPPER OBJECTS

Copper objects also form an integral element of the Chalcolithic Culture. The comparative rarity of such objects in the chalcolithic complex, and the rarity of chalcolithic sites in the northern plains would make it difficult to regard their origin as indigenous, but rather indicate contact with West Asia.[2]

BEADS

The discovery of faience and steatite beads in the Protohistoric period at Chalcolithic sites such as Navdatoli[3] having similarities with those found in the Indus valley sites and sites in Western Asia tend to indicate a possible contact between these regions. Equally important is the close correspondence between the eight incised patterns on the terracotta beads or spindle whorls from Troy or Anatolia in general and the one with an incised pattern on a bead from Ahar and an identical one on a bead from Anau.

GRAINS

Different kinds of grains found at Navdatoli at so early a period point to West Asia as the source of their origin.[4] The distribution and antiquity of wheat, lentils and linseed, suggest Western Asiatic contacts, whereas rice is believed, by most authorities, to be indigenous. People in the south are known to have cultivated *rāgi* (*Eleusine corocana*) which is believed to have come from Africa. If this is correct, it proves maritime contact.

1. *IP*, p. 163.
2. *Ibid.*, p. 165.

1. *EMN*, pp. 182-183.
2. *SP*, p. 169.

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CRITICISM OF THE THEORY

There are some scholars who do not agree with this theory. According to them, the forms and fabric of pottery found in Chalcolithic period are not actually related to those of Iran. The channel-spouted bowls from Necropole B at Sialk are assignable to 1000—800 B.C. At Navdatoli, they are not later than 1200 B.C. Against this, H.D. SANKALIA[1] holds that it was not necessary to copy from Iran, but from other earlier sites of West Asia. The channel-spout in Western Asia was prevalent in 2500 B.C. This type of vessel from Khiroki Kitia in Gyprus is assignable to about the fourth or fifth millenium B.C.

S.P. GUPTA[2] holds that the channel-spouted vases from Sialk have not only considerably longer channels, but in addition, handles as well. If it is the case of import, influence and imitation, there should also be handles on the bowls at Navdatoli. S.R. RAO[3] is of the opinion that spouted vessels were already known to the Harappans, and there was no question of their imitation from the West. It has been demonstrated at Rangpur how wine-cups evolved from the bowls and dishes on stands, in three stages. At the intermediate stage, the bowls have been found at Ahar. It is not necessary to look for any foreign influence to understand the emergence of wine-cups.

Regarding the designs on the pottery, S.P. GUPTA[4] argues that several designs of the Navdatoli pottery are found on Neolithic Chinese pottery. GRACE MORLEY observes that such a parallelism, is not so real as to indicate any relationship of give-and-take between the two countries. It is not, therefore, a case of diffusion. It also seems to be quite plausible, that at a certain stage of cultural development, men from different places express themselves almost in the same fashion without being much influenced by their contemporaries or neighbours. The decoration of dancing human figures on white slipped pottery is of a general kind, and we cannot deduce any conclusion from it.

Iron and Grey Ware were prevalent at Hissar II and Anau III, in Necropole B and Tape Giyan I. Both are absent in the Chalcolithic Cultures of the early period. If there was any influence from Western Asia, both iron and Grey Ware would have been adopted. Against this, it may be suggested that its absence was due to selective borrowing.

The blade industry of Chalcolithic Cultures did not necessarily originate in Western Asia. It seems that this industry is related to the Southern Neolithic culture, which according to B.K. THAPAR,[5] is indigenous.

Against the above mentioned argument of the grains, it may be suggested that wheat was known to the people of Mohenjodaro. Rice is believed to be of indigenous origin. It is possible that the grains cultivated in the Chalcolithic Period might have been independent in origin and without any influence from the Western Asia.

1. *IP*, p. 166.
2. *Ibid.*, p. 170.
3. *Ibid.*, p. 171.
4. *Ibid.*, p. 170.
5. *Ibid.*, p. 70.

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ORIGIN FROM HARAPPAN CULTURE

There is another view[1] that the Chalcolithic Culture of India has its roots in the Harappan Culture. As believed by some scholars, after being uprooted from their hearths by the invaders, the Harappans seem to have migrated towards Gangetic *Doab*, Saurashtra, Malwa and Banas Valley and settled down on the banks of the rivers. While the Harappan Culture began to decline from about 2000 B.C., this marks the beginning of the Chalcolithic Culture. We may recognize vague Harappan influences in recurrent forms, and occasional patterns of the pottery of Chalcolithic Culture. The dish-on-stand and certain other forms of dishes of Harappans have been found at several chalcolithic sites. The pottery fabrics such as Black-and-Red of the Banas Valley, Painted Black-on-Red Ware of Malwa, Ochere Coloured Pottery of the Gangetic *Doab* and the Lustrous Red Ware and the Black-and-Red Ware of Saurashtra have affinity with the pottery of Harappa.

But there is no clear link between the Harappan Culture and the Chalcolithic Culture. There is no stratigraphical overlapping. The Harappan Culture is urban, but the Chalcolithic Culture is rural.

CHALCOLITHIC CULTURE REPRESENTS THE ARYANS

The Chalcolithic Culture is known to have covered a period from 1750—1000 B.C. Some scholars postulate two waves of Aryans to India, the first in 1750 B.C. and the second in 1000 B.C. S. PIGGOTT[2] identified the first wave of the Aryans with the destroyers of Harappa Civilization at a time when the Chalcolithic Culture began. G.R. SHARMA[3] has also shown on the basis of Indian linguistic, literary and archaeological evidence that Arayans came in India in two major waves. LALLANJI GOPAL[4] held that the Aryans in early Vedic period knew only '*ayas*' copper but not iron.

B.P. SINHA[5] and D.P. AGRAWAL[6] tried to identify Banas Culture with the Aryans. There is closeness of Banas Culture in time and space to the Harappans. Folk migrations from Western Asia in first centuries of the second millenium and the end of the Harappans by the middle of eighteenth century B.C. and finally the sudden emergence of Banas Culture about that time cannot be explained by any other hypothesis. Banas Culture traits show much borrowings from the Harappans. A spread of Black-and-Red Ware tradition in the *Doab* and Bihar in pre-P.G. Ware and pre-N.B.P. ware contents respectively supports this view. Malwa Chalcolithic Culture and Northern Deccan Chalcolithic Culture (Nevasa and Jorwe) have been suggested to be connected with the Haihayas, a branch of the Aryans by H.D. SANKALIA. Their Western affinities also have been indicated by him. These cultures can represent only subsequent stages of Aryan colonisation. Some

1. Wheeler, *Early India and Pakistan*, pp. 125-26.
2. *Prehistoric India.*
3. *The Excavations at Kausambi.*
4. *Jour of Andhra Hist. Res. Soc.*, 1962-63, pp. 28-34.
5. *JBRS*, Vol. XLVI, p. 60.
6. *Curr. Sci.*, March 5. 1966, 35, 5, pp. 114-117.

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scholars like H. GELDERN[1] associated the Copper Hoard Culture of India with the Aryans.

The chronological estimate on the basis of C-14 goes against the Aryan theory. Generally, scholars place the migration of the Aryans towards India in about 1200 B.C., but the Calcolithic Culture is dated from 1750 B.C. From the study of Vedic literature, the Aryan expansion in India is associated with the fully developed iron industry and swift moving horses, without which the militant race would not have established its supremacy. But on the pottery of the early Chalcolithic Culture, there is an absence of horses in the painted designs, and no terracottas or bones of horses have been discovered. The theory of an early Aryan movement from Iran is not proved. There is also the question of route, and no remains have been found in the intervening land.

PRE-ARYANS AS AUTHORS

If they were not Aryans, they were pre-Aryans.[2] According to some scholars, this Chalcolithic Culture belongs to the Dravidians. It is believed that this Chalcolithic Culture should be attributed to the Nagas, Sabaras, Pulindas, etc., who are according, to the *Purāṇas*, the original inhabitants of India. However, no such reliance can be placed on the *Purāṇas* because they are of a very late period. The archaeological excavations have not proved their genuineness because no written record confirming to the account of the *Purāṇas* has been discovered.

ANCESTORS OF SOME OF THE PRIMITIVE OR ABORIGINAL TRIBES

HAIMENDORF[3] has suggested that the authors of this Chalcolithic Culture of India might have been the ancestors of some of the primitive or aboriginal tribes now confined to the forests or hills, of Madhya Pradesh, Orissa, Bihar and Andhra; tribes like the Gonds, Baigas of Bastar, Sabaras of Chota Nagpura, or the Chenchus of Kurnool. It might be held that the Bhils and Mundas, who are supposed to be some of the Kolarian tribes from the North-West, driven to their present forest habitat by the Aryan speaking people, were the bearers of the various Chalcolithic Cultures of Rajasthan, Madhya Pradesh and the Deccan.

In fact, the *Purāṇas*, and other literature, do speak of the Bhils, Nishādas, Pulindas and other tribes inhabiting these regions. However, these references are much later than the Chalcolithic Culture, which is dated about 2000 B.C.

The second difficulty is that all these tribes are at varying levels of the hunting and food-collecting stage. They practice primitive agriculture by burning forest enclaves, and are ignorant of the real art of ploughing. None of these has any knowledge of fine pottery and grinding of stone implements which characterize the Chalcolithic Culture. This is due to de-socializing and de-culturizing factors, as argued by some anthropologists. There are certain examples of the tribes, like the Hūṇas and the Gurjaras, who had once been empire builders, but who sank back to the life of shepherds. This is possible also with the primitive tribes under

1. *JISOA*, IV, 1936, pp. 87-113; *AI*, 7, pp. 20-39.
2. *EMN*, p. 252.
3. *IP*, p. 227.

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reference, but the links with the past have to be established. For this, excavations are to be carried out in the excluded area of the primitive tribes in order to get an idea of the traces of the culture which their ancestors had carried with them when pushed back by the oncoming Aryans.

ANTHROPOLOGICAL EVIDENCE

The anthropological evidence[1] from Nevasa indicates an indigenous element in the culture. The limited skeletal data from Nevasa (Ehrhardt, 1960) has shown the prevalence of the native Australoid element among the Chalcolithic people, pointing in the direction of an indigenous folk. The Chalcolithic Culture is not different from the Northern Deccan Chalcolithic Culture, and hence, like Nevasa, the Chalcolithic Culture also seems to be native.

All these are pure speculations about the origin and authors of the Chalcolithic Culture. In order to say something definitely on the point in hand, there must be more tangible data, like pottery, particularly abundant skeletal material, and some form of writing if it was there. From the existing material, it seems that the people were indigenous. They adopted new ideas from Iran, and particularly their pottery in its forms and fabric was influenced by that of Iran. The Harappan culture and the other contemporary cultures also contributed considerably to the origin and gradual development of the Chalcolithic Culture.

1. *IP*, p. 189.

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CHAPTER XII

EARLY IRON AGE CULTURES
(*C* 1100 B.C.—600 B.C.)

The introduction and mastery over iron is an important stage in the technological advancement of mankind. It was preceded by copper and bronze. When iron was extracted, smelted and forged into objects from about 1100 B.C., the Iron Age started. The role of iron did not remain the same everywhere. In India, iron remained associated with Painted Grey Ware Culture, Black-and-Red Ware Culture and Megalithic Culture during the early period.

IRON IN ASSOCIATION WITH THE PAINTED GREY WARE CULTURE

In north India, iron objects have been discovered at several sites in association with the Painted Grey Ware. The most important site is Atranjikhera which yielded not merely the most prolific data on the use of iron in the times of the Painted Grey Ware, but also the earliest date so far known of the Painted Grey Ware itself along with iron, namely 1025±110 B.C.[1] As this site yielded iron tools and implements practically from all the layers, it proves that the use of iron started during the Painted Grey Ware period. The iron objects comprise adzes, daggers, hoes, arrow-heads and spear-heads, with tang, fish-hooks and tongs.[2] The excavation at Noh[3] has revealed a sequence comparable with that of Atranjikhera, and iron objects occurred in association with the Painted Grey Ware at its earliest level. They comprised spear-heads and arrow-heads; the latter leaf-shaped and provided with a socketed tang. The objects of iron associated with the Painted Grey Ware at Ahichchhatra[4] are of indeterminate shape as are the shapes in Bairat[5] though enormous quantities of slags of iron clearly indicate a local industry at the latter place.

Iron objects have been found in association with Painted Grey Ware at Hastinapur,[6] Alamgirpur,[7] Kausambi[8] and Ujjain.[9] The objects like slags of iron have been found in the upper levels of Painted Grey Ware at Hastinapur. These slags suggest local manufacture. Objects found in the upper level of Painted Grey

1. *Potteries in Ancient India*, p. 186.
2. *I.A.R., 1960-61*, p. 35; *1962-63* and *1964-65*.
3. *I.A.R., 1963-64; 1964-65*.
4. *Ibid., 1963-64; 1964-65*.
5. *Ibid., 1953-54*, p. 61.
6. *AI*, Nos. 10 & 11, *1954-55*, pp. 13, 97.
7. *I.A.R., 1958-59*, pp. 54-55.
8. G.R. Sharma, *The Excavations at Kausambi*, p. 18.
9. *I.A.R., 1956-57*, pp. 20-18, *1957-58*, pp. 32-36.

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Ware at Alamgirpur include spear-head, barbed arrow-head, nails and pins. At Kausambi, small fragments and shapeless bits of iron were found as early as the third of the four structural periods within the first period of occupation on the site, which is clearly a pre-Painted Grey Ware layer in the interpretation of the excavator. The most distinctive shapes occurred in the second period of occupation which was associated with the Painted Grey Ware. At Ujjain, objects of iron comprising spear-heads, arrow-heads and knives occur in the earliest period of occupation called period I.

IRON IN ASSOCIATION WITH THE BLACK-AND-RED WARE CULTURE

Iron objects have been discovered in Association of the Black-and-Red ware at Eran,[1] Prakash[2], Bahal[3] and Nagda.[4] The occurrence of iron objects in period II dated 750-500 B.C. at Nagda in District Ujjain in a context which is a continuation of the earlier chalcolithic life on the site is another new evidence on an early date of the use of iron. These comprise fifty nine objects consisting of a dagger with double edges and a tapering point, a circular socket of a broken axe, a spoon, a celt with a broad cutting edge, a ring, a nail, arrow-heads with biconical cross-section and a tang, spear-heads with square or oval cross section and knife blades displaying a wide variety of shapes suggesting diverse uses and blades and sickels. All these indicate a fairly established usage of iron objects. This inference is supported further by the evidence of well defined objects of iron at Prakash, District E. Khandesh, Maharashtra. Iron objects have been found below the N.B.P. level up to a depth of 14 ft. (427 cm). The objects comprise tanged arrow-heads, axes, knife-blades, fragments of a sickle, nails and clamps. A similar evidence is also available at Bahal where iron objects occurred in period II some 10 ft. (305 cm.) below the lowest N.B.P. sherd. Iron objects occur at Eran, in District Sagar, Madhya Pradesh along with the earlier Chalcolithic tradition of the Black-and-Red ware. The two earlier Carbon 14 dates of iron at this site 1265 B.C. and 1049 B.C. are significant in this respect. Its early phase can be bracketed between 1300 (1250) B.C. and 700 B.C.[5]

In addition to the evidence of above sites, iron objects have been found in association with the Black-and-Red Ware at Nagal,[6] District Broach, Gujarat, Mahishdal,[7] District Birbhum, West Bengal, Chirand,[8] District Saran, Bihar; Sohagaura,[9] District Gorakhpur, Uttar Pradesh and Rajghat,[10] District Varanasi, Uttar Pradesh. The evidence of Nagal is of pre-N.B.P. ware in sequence. At Kausambi,[11] where Black-and-Red Ware and the Painted Grey Ware occur together, along with iron, has been cited as another evidence in support of the theory of a prior evolution of iron along with the Black-and-Red Ware. At Mahishdal,

1. *I.A.R., 1960-61*, pp. 17-18.
2. *Ibid., 1954-55*, p. 13.
3. Wheeler, *Early India and Pakistan*, p. 146.
4. *Ibid.*, pp. 139, 146; *I.A.R., 1955-56*, p. 12.
5. *Prāchya Pratiphā*, IV, 2, p. 36.
6. *I.A.R., 1961-62*, pp. 11-12.
7. *Ibid., 1963-64.*
8. *Ibid., 1962-63, 1963-64.*
9. *Ibid., 1961-62*, p. 56.
10. *Ibid., 1962-63*, p. 41; *1963-64.*
11. G. R. Sharma, *The Excavations at Kausambi.*

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Chalcolithic Culture is distinguished by White Painted Black-and-Red Ware, and iron made its appearance in diversified forms such as arrow-heads, spear-heads, chisels and nails. Besides iron ore and slags are indicative of a local industry. The exact chronological position of the iron-bearing levels is yet to be determined. Iron slags were just discovered on the top levels of Black-and-Red Ware deposit from Sonepur,[1] District Gaya, whereas from Chirand, a fairly good number of socketed hoes (about 5 or 6 in number) were discovered from the top three layers of the Black-and-Red Ware deposit. The excavations at Rajghat, District Varanasi, Uttar Pradesh yielded some iron objects along with Black-and-Red Ware.

IRON IN ASSOCIATION WITH THE MEGALITHS

Even before the Megalithic Culture, iron was used in south India because at Hallur,[2] the beginning of Iron Age is 1105 B.C. One view is that it might have been introduced first in the south of India by the sea route.[3] From there, it might have been sent to the North. It is also quite possible that it arose from the north and diffused in the South. It remained associated with the Black-and-Red Ware. At Hallur, along with iron, horse bones have been found from a layer immediately following a transitional Chalcolithic phase. It is also found in early contexts near Madurai in the far south.

The full development of the Early Iron Age culture is associated with a remarkable burial complex known as Megalithic. Megalithic is derived from the Greek words *MEGAS*=large and *LITHOS*=stone. Megalithic means a large stone. This monument fulfilled a funerary or commemorative or religious function. The south Indian Megalithic comprises a great variety of grave forms including stone-circles with urn-burials, legged pottery sarcophagi, cist graves sometimes with port-hole entrances, stone alignments, and rock-cut chambers. The Black-and-Red Ware is the characteristic of the Megalithic Culture as it is found as grave pottery. Iron implements are universally represented among the grave goods. They include flat iron axes, sickles, spades, chisels, knives, tripods, lamp-pendants, tridents, horse-furniture, daggers and swords. These objects meet most of the needs of warfare and hunt as well as of the household or agriculture. These objects suggest a uniformity of cultural life followed by the organized community of smiths serving the local pastoral population.

The main megalithic sites in the South are Brahmagiri,[4] District Chitaldurg in Karnataka; Nagarjunakonda,[5] District Guntur; Maski,[6] District Raichur', Yelleswaram,[7] District Nalgonda, and Pochampad,[8] District in Adilalad in Andhra Pradesh;[9] T. Narsipur, District Mysore; Hallur;[10] District Dharwar; and Sangana-

1. *I A.R., 1961-62*, p. 4.
2. Nagaraja Rao, M. S, *Protohistoric Cultures of the Tungabhadra Valley—A Report on Hallur Excations*, Bangalore, 1971; *SPPIP*, p. 541.
3. B. P. Sinha, *Presidential Address*, Seventh Annual Congress of the Indian Archaeological Society.
4. *AI*, Vol. 4.
5. *Ibid., 1958-59*, p. 6; *1959-60*, p. 7.
6. *AI*, Vol. 13, p.l.
7. *Ibid., 1964-65.*
8. *Ibid., 1964-64; 1964-65.*
9. *AI, 1958-59*, p. 33.
10. *Ibid., 1964-65.*

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kallu,[1] District Bellary in Karnataka and Kunnattur[2] District Chingleput and Paiyampalli,[3] District North Arcot in Tamil Nadu.

Previously there was almost a consensus of opinion among scholars about the megaliths of south India dating back at the earliest to 300 B.C. N. R. BANERJEE[4] fixes the date 700 B.C. on the following arguments.

(1) The evidence at Brahmagiri, District Chitaldurg in Karnataka, Nagarjunakonda, District Guntur, and Maski, District Raichur both in Andhra Pradesh shows overlap of the Megalithic culture with the preceding Neolithic-Chalcolithic Culture. The Neolithic-Chalcolithic Culture can be dated approximately to 1500-800 B.C. As the Neolithic-Chalcolithic Culture catches up with the Megalithic Culture in the later levels, the beginnings of Megalithism should, therefore, be dated correspondingly.

(2) The common features between Neolithic-Chalcolithic Culture and Megalithic Culture also lead to the same conclusion. The similarity of shapes of bowls in the Black-and-Red Ware including graffiti marks found in the Megalithic Culture are noticed at Bahal. The practice of both burial custom was adopted by the people of Megalithic Culture. The burial in full is evidenced at Maski, Sulur, Nagarjunakonda and pit-burials elsewhere. The use of lime-bed as in the Chalcolithic levels in Nevasa as well as in the Megalithic levels at Brahmagiri are common features.

(3) The similarity with the cairn-burials of Pakistan in the shape of the structure, fractional burials, presence of iron objects, horses' heads and a prototype of the port-hole entrance links up the Megaliths of the South with the Cairn burials. The Cairn burials again are linked with the Londo ware further north in the form of the painted volutes on the pottery and the Londo ware in turn with Sialk VI B as well as Luristan pottery. All these help date the cairn-burials to 800 B.C., if not earlier and their impact on the Megaliths of south India is clear.

(4) Further, the fact of the distribution of the Megalithic monuments in south India over the Dravidian linguistic Zone suggests a link between the two. It is patent that the Dravidian speakers, who became the exponents of a rich and variegated cultural life, could not be identified with the neolithic crop-farmers who were the predecessors of the Megalithic builders. The fact of the occurrence of considerable elements of the Dravidian language in the *Rigvedic* language of the oldest strata would point to a period of co-existence in the land of the five rivers and a subsequent movement southwards.

(5) The inscriptions of Aśoka on the southern soil as at Brahmagiri or elsewhere in the Prakrit language would presuppose an earlier movement of the northerners into this region. The highly advanced stage of the Dravidian language i.e. Tamil as early as the first century B.C., the Tamil inscriptions in Brahmi script, the existence of four well-established Kingdoms of Pāṇḍya, Chola and Satyaputra in the South at the time of Aśoka signify peaceful evolution from much earlier times and surely after the Neolithic cattle farming has ended.

1. *Ibid.*
2. *Ibid.*
3. *Ibid.*
4. *IP*, pp. 185-186.

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There are certain peculiar components of the Megalithic culture of south India, and they seem to have originated from the different sources. Iron may have been imbibed from the cairn-burials of Pakistan or from the users of the Painted Grey Ware or from both. It is more likely in view of their gradual southward movement, for them to have known about iron from the users of the Painted Grey Ware. The plethora and large variety of the iron equipment of the Megaliths may suggest an independent origin and development of iron in the South. The plethora and variety is easily explained by the large numbers of deposits of iron ores almost throughout the Peninsula. The megalithic mode of burial may have been imbibed to an extent from the cairn-burial folk as well as from the later Vedic people among whom the practice of collection of calcined bones, their incarceration in an urn, under a mound surrounded by a circle was known. The Black-and-Red Ware pottery may have been imbibed from the Chalcolithic folks of north India. The early megalithic remains of Bharatpur, Alwar and Jaipur Districts in Rajasthan, and of Mirzapur and Varanasi District may as well have influenced the megalithic builders of the South. The skeletal remains from Brahmagiri and Yelleswaram have shown a predominant round-head or brachycephalic character. The brachycephalic elements as well as the port-hole characteristic indicate an influence from the direction of Iran i.e. Sialk VI B, and would lend support to the date scheme.[1]

The megalithic monuments around on the Irano-Pakistan borderlands, Sind, Kashmir, Rajasthan and Uttar Pradesh are probably the straggling remains on the onward movement of the megalithic idea from Makran to Middle India and thence to the South. Iron was discovered at some sites in cairn-burials in Baluchistan, Persian and Baluch Makran on the Irano-Pakistan borderlands such as Moghul Ghundai, Gatti, Jiwanri, Nasirabad and Zangian.[2] The principal recognisable form of the iron objects in the cairns is the arrow-head. In Sind, there were stone-graves on the hills near Waghodur in the shape of dolmens in the neighbourhood of Karachi. Cairns and cromlechs were observed on the road to Shah Bilawal in Baluchistan and also in the hills on the direct road from Karachi to Kotri. M. WHEELER has found some remains of cists and stone-circles in the region following these hints.[3]

CUNNINGHAM[4] reported the occurrence of 'cromlechs', cairn and stone-circles in the hilly parts of District of Delhi and Mirzapur and also in Orissa. In the megaliths at Hathinia Pahar and Kotia in the Varanasi and Allahabad Districts of Uttar Pradesh, Microlithic and Iron Age assemblages, respectively have been found, pointing possibly to an evolutionary trend from the Chalcolithic to the IronAge, and from the north-east towards the south. The iron objects from the megaliths of Kotia comprise spear-heads, sickles, arrow-heads and adzes. They are found associated with the Black-and-Red Ware pottery. This assemblage points to a mixed economy of hunting and agriculture. Megaliths excavated at Banimilia-Bahera in the Jangal Mahal area in the adjoining District of Mirzapur yielded Black-and-Red ware. They belong to the Iron Age, though no iron has so far

1. *IP*, p. 186.
2. *The Iron Age in India*, pp. 8-9.
3. *Ibid.*, pp. 49-50.
4. *Ibid.*, p. 50.

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been found. A.C. CARLLEYLE observed a cromlech within one of four stone-circles at Deosa near Jaipur in Rajasthan. Similar monuments were observed at Khera, near Fatehapur Sikri, Satmas, besides, granite and slate 'cromlechs' at Deodhoora, near Almora in U.P. At Visalpur in Rajasthan, he found an ancient arrow-head, which is made of iron in an apparently megalithic context. These megaliths seem to be earlier than those of south because no antiquities of the historic period have been found in them. Burial cists have also been observed in Leh valley of Ladakh, on the border of Tibet. The excavations conducted on some of these have yielded burials containing disarticulated human bones, accompanied by bronze and iron objects.[1]

SOURCE OF MEGALITHISM IN INDIA

There are divergent views among scholars about the source of Megalithism in India. GORDON CHILDE[2] has suggested that megalithic idea may have travelled to India across the sea through Arabia. R. HEINE GELDERN[3] is of the view that there may be more than one strain of megalithic concept entering into India. Some megalithic remains in northern region can well be independent of the southern complex. He traces this movement through Central Asia. WALTER RUBEN[4] expressed the view that the megalithic trait came into India from Palestine *via* Persia. As interpreted by him, one strain proceeded to the south and the other towards the east till the land of the Mundas was reached. HAIMENDORF tried to connect the introduction of megaliths in south India to a distinctive linguistic group in India. He expressed the view that the present distributional zone of the megaliths in peninsular India covers exactly the Dravidian speaking area. It is possible that the Dravidian speakers, who were once spread over north-west India at or before the time of the composition of the *Rigveda*, which on different accounts has a date range of from 1500 to 1000 B.C. introduced Megalithism in south India. They were being gradually pushed down southwards by the expanding and oncoming Aryans. On their way, they had but a reasonable chance of picking up the use of iron, Black-and-Red pottery and also the Megalithic strain, the triple characteristics of the early Dravidians, either from the cairn-burial folk or from the Aryans, with whom such burials were becoming unpopular at the time or from the both.

WHEELER'S[5] analysis of the megalithic problem traces its Black-and-Red Ware to (i) the dying phase of the Chalcolithic Culture, (ii) iron to the northern plains, and (iii) the megalithic burial complex to an unknown source possibly lying outside India in the West. N.R. BANERJEE[6] also came to the conclusion that the megalithic builders penetrated into the south considerably before the Mauryan invasion. They had a reasonable chance of picking up acquaintance with iron either from their Aryan compatriots or from the cairn burial folk. They imbibed and continued the ceramic tradition of the chalcolithic culture, of an end-phase or even a post-chalcolithic

1. *Ibid.*, , p. 50.
2. *The Prehistoric Background of Indian Culture*, p. 18.
3. *The Iron Age in India*, pp. 55-56.
4. *Ibid.*, pp. 56-57.
5. *Indo-Asian Culture*, II. No. 3, Jan. 1954, pp. 38 ff.
6. *AI*, No. 4, pp. 200-202.
7. *The Iron Age in India*, pp. 62-63.

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phase. They appear to have imbibed and incorporated some aspects of the burial customs of the chalcolithic folk as well. The chronological extent of the cairn-burials, taking its initial date back to *C.* 800 B.C. accords well with the end-phase of the Chalcolithic Culture extending up to 800 B.C. as well as with the succeeding Iron Age Culture at Nagda and Ujjain namely 750 B.C.

A. SUNDARA[1] is inclined to suggest that there appears to be some affinity between the megaliths of south India and West Europe where they belong to the Neolithic and Bronze Age Cultures and are dated from 3500 to 1700 B.C. by CHILDE, WHEELER, etc. In this regard, some types of the passage chambers many of which were discovered recently and studied by A. SUNDARA in North Karnataka, seem to have rather striking similarities with some of the types of Western Europe.

In Western Europe megaliths of the most of the sites, are not as numerous as in south India or Karnataka, some being exceptionally very imposing but disproportionate. Among the types, the round barrow being very common, the passage chamber is circular-polygonal, approached by a passage. The passage is generally long and wide. In Inverness-Shire, the passage chamber is bound in cairn-circle which in turn is enclosed by another circle of free standing stones spaced regularly. There is no cairn between the two circles. This type of passage chamber is analogous to the passage circular chamber of Terdal-Halingali (Karnataka), Here it has a short passage enclosed in two circles, or a circle and a rectangle or a rectangle filled with cairn. Besides, it has pillars within the chamber to support the capstones.

Some passage chambers of Western Europe look on plan like V and are therefore known as V-shaped passage chambers. Some of the passage chambers of the Kaladgi and the Tomb No. 2 of Hunur group may be V-shaped passage chambers which are invariably surrounded by circle.

Painted Grey Ware Culture and Megalithic Culture are the two distinct cultures of the Early Iron Age with their distinct characteristics. These cultures may be regarded as transitional stages from rural to urban life. Painted Grey Ware Culture flourished in the North while Megalithic Culture mainly in the South. Nothing can be said positively about the authors of both these cultures.

PAINTED GERY WARE CULTURE

As this ware is grey in appearance with a core of well-levigated clay, and as painting is executed in black colour, it is known as painted Grey were. It's epicentre was in the Ganga-Yamuna *Doab*, and the main excavated sites are Bhagwanpura, Hastinapur, Mathura, Alamgirpur, Allahpur, Khalaua, Kampil, Prahladpur, Kauśāmbī, Atranjikhera and Ahichchhatra. Several sites such as Saradargarh have been discovered in the Sarasvati Valley and in the Drishadvati Valley. Occasional sherds have been also found at other places in Rajasthan such as Chosala,[2] Gondi,[3] Bairat,[4] Jothpura near Jaipur, Kama,[5] Noha and Bhagwanpura[6] near Bhilwara,

1. Abstracts of Papers accepted for reading, Section of Anthropology & Archaeology, 61st Session, *ISC*, p. 6.
2. *I.A.R.*, *1958-59*, p. 45.
3. *Ibid.*, p. 45.
4. *Ibid.*, *1953-54*, p. 61.
5. *Ibid.*, *1957-58*, p. 33.
6. *Ibid.*

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Occasional sherds of the Painted Grey Ware have been discovered in the core of the rampart at Ujjain.[1] The Bhind region[2] has also yielded many Painted Grey Ware sites. This may prove the migration of the Painted-Grey Ware people to different places, and also the mutual cultural contact. The other objects discovered in the excavated Painted Grey Ware sites throw some light on the material aspect of the people.

The vessels in Painted Grey Ware sites are restricted in shape, being confined to dishes and bowls. The painted designs on the vessels also present a limited variety. They are painted with geometric designs. The *svastika* was a favourite with these folk as well.

The Painted Grey Ware Culture was actually the iron-using culture. The discovery and the use of iron brought about a revolution in the economic condition of the people. Iron played a great role in colonizing the dense forest areas like that of Gangetic *Doab*. A large number of settlements in the form of villages were established. The houses appear to have been of mud walls. Mud bricks and baked bricks were generally not used.

Formerly, it was held that as there is no occurrence of the Harappa relics and of the Painted Grey Ware together anywhere, the Harappa and Painted Grey Ware Cultures never came into contact with each other. The people of this culture broke new ground to build their villages and did not utilise any existing mounds for the purpose. They began settlement with Grey-Ware. Recent excavations at Bhagwanpura, District Kurukshetra, Haryana have brought to light for the first time the overlap of the Late Harrppa Culture with the Painted Grey Ware Culture.[3]

The Painted Grey Ware Culture had an agricultural society in which cattle breeding and farming formed important occupations of the people. People were both vegetarian and non-vegetarian. The people ate rice as we know from its find in excavations at Hastinapur. Wheat must have been eaten as it was known from much earlier times. This diet was supplemented with beef, pork, mutton, venison and even horse's flesh. This is indicated by the occurrence of large quantities of bones of these animals. The cow, fox, buffalo, pig, goat, sheep and horse were domesticated animals. Cooking was done on simple one-mouthed *chūlhā* with horse-shoe like sides. People wore ornaments—necklaces, pendants, ear-rings and bangles—made of semi-precious stones (chert, agate, jasper, carnelian), bone, terracotta (discs, simple and decorated), cylindrical objects of chert and jasper and glass bangles. Spinning was done on one and two holed terracotta discs. Clothes like *dhotī* as a lower garment made of cotton were put on both by men and women. For wearing, double pointed bone pieces were used. Of the copper objects, Hastinapur has yielded an arrow-head, an antimony rod, a nailparer and a borer.

B.B. Lal[4] has tried to associate the Painted Grey Ware people with the Aryans tentatively and provisionally by correlating the archaeological funds with literary basis.

1. *Ibid., 1955-56*, p. 11.
2. *IP*, p. 229.
3. *The Statesman*, 9th April 1976.
4. *AI*, Nos. 10 and 11, pp. 150-151.

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(1) According to literary evidence, the Vedic Aryans were in occupation of the fertile plains of southern Punjab, and the now dessicated northern Rajasthan and that, as time passed, they moved eastwards into the Ganga basin. The Painted Grey-ware is found at all these places as past relics of the Aryans in excavations.

(2) There is distribution of Painted Grey Ware on the sites bearing the names occurring in the *Mahābhārata*.

(3) The Painted Grey Ware with its affinities to that from Shah Tepe (Iran) may suggest the first wave of the Aryans who settled for a longer time in the Sarasvati Valley. Since the Painted Grey Ware is not connected with the relics of any previous culture known to India, it is reasonable to suppose that its authors did not spring out of the Indian soil but came from outside as the Aryans.

(4) Its occurrence stratigraphically above the remains of the Harappans as depicted at Ropar in (Punjab), Alamgirpur in District Meerut (U.P.) and by inference in Bikaner region may prove that the authors of the Painted-Grey-Ware Culture were Aryans.

(5) The cultural life obtaining among the users of the Painted Grey Ware is extremely simple. Limited excavations have enabled us to know about their pottery, mud houses, food consisting of beef, pork and venison, use of copper and iron and the horse. The life of the Vedic people was indeed simple pastoral country life with belief in the forces of nature.

(6) The *Atharvaveda* mentions pottery as *Nīlolohita* meaning bluish red and the blue-red or reddish blue or blue and red as the case may be. B.B. LAL has adduced-parallels from Afghanistan, Shah Tepe and Thessaly. Such pottery has been observed is Lakhiyopir to the north of Karachi in Pakistan and Hasanlu in Persian Azarbaijan. This pottery is dated to 1000-800 B.C. and is attributed to Indo-Aryans.

It seems that the Aryans after their entry into India introduced Painted Grey Ware and iron. In the words of Y.D. SHARMA[1], the study of the Aryan expansion must be made in the light of the fully developed iron industry, and swift-moving horses, without which this militant race would not have established its supremacy over the *Asuras*, *Dāsas*, etc. In the *Rigveda*, we do not know of any cultural phase other than that of the Painted Grey Ware, which is associated with a fully developed iron industry, and the image of culture which emerges from the study of the *Rigveda*, seems to correspond more to the Painted-Grey-Ware Culture. Some scholars like R.E.M. WHEELER[2], consider it the second wave of Aryan migration to India from the west.

However A. GHOSH[3] advises against any premature judgement. According to him, it is premature to hold that the Painted Grey Ware people were no other than the Aryans. It is also premature to say that the Aryans had nothing to do with the disappearance of the Harappans. The other view is that *Nīlalohita* can hardly mean Painted Grey Ware, it may stand for Black-and-Red-Ware.

1. *IP.*
2. *India and Pakistan*, p. 28.
3. *Rang Mahal*, p. 145.

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CULTURE AMONG THE MEGALITHS OF SOUTH INDIA

The Megalithic culture, succeeding the Primitive Neolithic Chalcolithic culture of South India, represents a distinct phase. The authors of the primitive Neolithic Culture were Proto-Australoids while those of Megalithic Culture possessed brachycephalic features. These new megalithic people seem to have conquered the earlier occupants of south India and settled there. Besides brachycephalic features, these megalithic people seem to have spoken the Dravidian language.

Another notable feature of the Megalithic Culture was that people were well acquainted with the knowledge of iron, and they exploited considerably the rich deposits of iron ores in Mysore, Hyderabad and Madras by manufacturing different types of implements and weapons such as arrow-heads, javelins, spears, axes and chisels. It was one of the important industries. It began to be used in different spheres, and increased the production of wealth. Besides iron, gold, silver, bronze and copper were used though on smaller scale.

The use of large sized stones in the construction of graves is also one of the important features of the Megalithic Culture. It proves technological advancement. Though readily available boulders were freely used, the rocks had to be split to extract slabs of desired size and thickness to form the cist-chamber. For this purpose, chisels, wedges and crowbars of iron were freely used. The stone cutters were employed not only for the purpose of splitting of rocks but also for dressing the stones. The slabs were carried to the proper spot, and it was the difficult task at that time. For the construction of houses, wooden posts were used to hold the walls and roof altogether. This involved naturally the felling of trees and dressing of planks with their axes and chisels of iron.

These Megalithic people were primarily an agricultural and pastoral people. Generally, they built their burials rather away from their haunts of habitation as well as from any plot of land that could be tilled. Rice was the staple food of these people in the South as grains of rice have been found in associated levels at Kunnattur in District Chingleput, Tamil Nadu. Incidentally, it is also the earliest evidence of the use of rice so far known in south India. Hunting must have been another means of supplementing their food supply as the equipments of arrow-heads or spears would suggest. The flesh of sheep, goat and fowl served the purpose of diet for the bones of these animals have been found in the graves. They hunted the wolf or hyena to save their domestic animals from their clutches, as their bones have been found interment along with the rest. For the ploughing of the soil, bulls may have been used while the cows provided the milk. The occasional occurrence of the remains of a horse as at Junapani, near Nagpur, or the fragments of iron horse-bits indicate also the domestication and breeding of horses, besides their use on the chase and hunt and internecine tribal warfare.

Another important industry of the Megalithic people was pottery. Black-and-Red Ware was the characteristic of this culture, and it remained dominant. Besides Black slipped Ware and the Red Ware were also used. These wares were of different shapes and sizes comprising bowls, dishes, jars, vases, lids, ring-stands for supporting large vessels and three-footed jars. Sometimes, though rarely, the

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vessels were decorated by painting. Some of the vessels were scratched with graffiti marks. Such graffiti marks are also noticed on the pottery found at Rangpur in Gujarat. For the urn-burials, large jars in a coarse and gritty red ware with suitable lids of matching sizes were produced. For the sarcophagi which were in fact, terracotta coffins in two parts with a lower container and an upper lid were prepared. Both urns and sarcophagi were handmade. A large number of pots found in the Megaliths prove that the dead spirits had probably a life beyond, and needed food and drink to sustain themselves in their endless journey. The pots and pans bore the humble tribute of those that still lived and cared for them and provided the essential sustenance in food and drink.

The feature of the port-hole or opening usually on the eastern side had a significance. If it was connected with the direction of the rising Sun, a religious significance connected with the worship of the Sun god has been postulated. These burials were generally oriented east-west. The port-hole may also be means of escape of the souls of the buried dead to eternity or reincarnation.

Various objects found in the megaliths represent probably the belongings of the dead. They consisted of the weapons and tools of the vigorous male, the ornaments or the grinding slab and pestle of the feminine guardians of the household and the little playthings and tops of the forlorn children who died long before their years. The ornaments of stones, shell, gold, silver, copper and bronze used for decorating the persons throw light on jewellers' craft and trade.

These megaliths prove that there was greater vigour and interest in life and awed reverence for the dead unmatched elsewhere. They stand for a different people and divergent traditions. Their life was different from any that lived in the more northerly regions of the river valleys in north India either during the heyday of the Painted Grey Ware or the Northern Black Polished Ware.

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CHAPTER XIII

ARYAN PROBLEM

The Aryan problem is concerned with the original home of the Aryans, their gradual movements to the different parts of Europe and Asia, and their final settlement in Iran, India and other countries. This problem is also related to the date of Vedic Culture in India. These movements of the Aryans brought them into contact with other people on the way which led to racial and linguistic admixture, and consequently cultural modification by fusion. From time to time, scholars have attempted to solve this problem by taking into consideration different sources, such as: (1) Philology, (2) Archaeology, (3) Language and its Literature and (4) Anthropology. These scholars hold divergent views on this problem and nothing can be said positively uptill now. Thus, we are reduced to give a brief survey of all the views held so far.

PHILOLOGY

The Aryan problem started with the comparative study of the languages. A Florentine merchant, FILIPPO SASETTI (1583-88 A.D.), declared for the first time that there existed a definite relation between Sanskrit and some of the principal languages of Europe. But this relation was due to origin from a common source was suggested first by WILLIAM JONES in 1786. This idea of common origin of Greek, Latin, Gothic, Celtic, Sanskrit and Persian led to the foundation of the science of Philology. MAX MULLER advocated that Aryan means language. PENKA identified language with race to find out the land where the language built by comparative study of different languages was spoken by the undivided Aryans. These languages known as Indo-European languages are broadly divided into two groups, called respectively *Centum* and *Satem*, based principally, on the distinction of '*k*' or '*s*' sounds, peculiar to each group. The *Centum* group includes the (i) Celtic, (ii) Germanic, (iii) Italian, (iv) Greek, (v) Hittite, and (vi) Tocharian families while the *Satem* group includes (i) The Albanian, (ii) Letto-Slavonic, (iii) Armenian, and (iv) Indo-Iranian language families respectively.

By comparative study of these languages, scholars have tried to determine the language containing the words for animals and plants of the undivided Aryans. It is doubtful whether they possessed a word for sea. They were familiar with the oak, the beech, the willow, and some coniferous trees. The birch seems to have been known to them and possibly the lime, less certainly the elm. The useful

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animals best known to them were the ox and cow, the sheep, the horse, the dog, the pig, and probably some species of deer. The ass, the camel and the elephant were apparently unknown to them in early times. Of birds, they knew the goose and the duck. The most familiar bird of prey was apparently the eagle. The wolf and bear were known but not the lion or the tiger. They also seem to be acquainted with corn. This implies that these people seem to have lived in some region at certain time. By the nature of the trees, it seems that the climate in which they lived belonged to the temperate zone. From this type of data, one should attempt to locate the primitive habitat of the undivided Aryans.

ARCHAEOLOGY

Archaeological evidence from Western Asia as well as India also throws important light on the Aryan problem. The archaeological excavations and the Boghaz Kuei inscriptions in the script of Babylonian cuneiform yield information about the oldest known group of the Aryans known as Hittities who moved in Asia Minor before 1950 B.C. Among these, the most important is the inscription of 1400 B.C. mentioning the names of the four Vedic gods *Mitra, Varuṇa, Indra* and the *Nāsatyas* in the records of the treaties between the Hittite king Shubbiluliuma and the Mitanni king Mattiuaza. Further, a Hittite text on clay tablets in Indo-European (Aryan) language attributed to a Kikkuli of the Mitanni country on the training of horses at Boghaz Kuei connected with the turns and twists involved in the training of horses comprised the numerals—*aika-vartana, tera-vartana, pañza-vartana, sattavartana*, and *nava-vartana.*

The clay tablets with Babylonian cuneiform script discovered at El Almarna in Egypt have revealed the fact that numerous dynasties with Indo-Iranian sounding names such as *Artamanya, Arzawiya, Yaśdata, Śuttarna*, etc., were ruling in Syria about the same time. About 1760 B.C., Babylonia fell into the hands of Kassites who are known to have used the word '*Śurias*', an Indo-Iranian word to designate the Sun. These inscriptions prove the existence of the Aryans or Indo-Iranians in Western Asia from 2000 B.C. to 1400 B.C.

Excavations at the sites such as Sialk and Hissar in Iran and other early sites of Western Asia throw some light on the Aryan problem. Some antiquities such as pottery and implements recovered are associated with the Aryans.

On the evidence of Indian archaeological objects, S. PIGGOTT[1] and W. WHEELER[2] assume that Aryans came into India in about 1500 B.C. and wiped out the Harappan civilization and established their supremacy. According to S. PIGGOTT, the thick layers of ash fo und in the Rana Ghundai-excavation, the hoard of jewellery and weapons at Mohenjodaro indicating insecurity and distinctive assemblage of material equipment from Chanhudaro II prove Aryan invasion in about 1500 B.C. M. WHEELER opines that it is the cemetery H people at Harappa, identified as Aryans, who were responsible for the destruction of Harappa.

1. *Prehistoric India*, p. 241.

2. *The Indus Civilization*, p. 82.

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Some scholars have tried to associate the Chalcolithic Cultures of India (1750-1000 B.C.) such as Banas, Malwa, Northern Deccan and Gangetic *Doab* with the Aryans. The epicentre of the Painted Grey Ware Culture (1100 B.C.—600 B.C.) was in the Ganga Yamuna *Doab*, and the main excavated sites are Hastinapur, Alamgirpur, Kausambi, Atranjikhera and Ahichchhatra. B.B. LAL considers Aryans to be the authors of the Painted Grey Ware Culture.

LITERATURE

The Aryans in course of time composed the *Rigveda* which on linguistic grounds is dated 1000 B.C. It is the most important source of information about the early culture and civilization of the Aryans of a period in India when they were confined within the north-western corner of the sub-continent. The language of the *Zend Avesta* is also closely akin to Vedic Sanskrit of the *Rigveda*. The ancient Aryan Culture of Iran as revealed from the *Avesta* is hardly distinguishable from the Vedic Culture of India. Both seem to have derived from the one and the same Indo-Iranian Culture.

ANTHROPOLOGY

The Aryans as described in the *Vedas* are tall and had white skin, radiant complexion and fair hair. No skeletal remains have so far been identified positively with the Aryans of ancient times. These Aryans gradually mixed with local people at the places wherever they settled. They could not preserve their distinct individuality anywhere in the world. Hence it is difficult to say about their racial characteristics, and on this basis, it is not possible to locate their original home.

ORIGINAL HOME OF THE ARYANS

The original home of the Aryans has been located by different scholars namely in the Arctic region, Greenland, Scandinavian countries, Central Europe, Hungary, Central Asia, Siberia, India and South Russia. The views of these different theories will be stated here one by one, and in the light of the above discussed sources, their truths will be ascertained.

ARCTIC HOME

BAL GANGADHAR TILAK,[1] on the basis of the astronomical data found in the *Vedas* pronounced the original home of the Aryans in the Arctic region in the North. According to him, the ancestors of the Vedic *Rishis* lived in the Arctic home in the Interglacial period. It was destroyed by glaciation about 10,000—8000 B.C. The Aryans had to migrate towards southwards in Asia and Europe because of the invasion of snow and ice. The analysis of the Vedic deities shows that they had polar attributes. In the *Avesta*, there is refer to "*Airiyānam vaejo*" which means Aryan paradise. This Aryan paradise must be sought in the Interglacial

1. *Arctic Home in the Vedas*, pp. 453-455.

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period. There are many passages in the *Rigveda* referring to the physical phenomenon which can be only explained by postulating that hymn makers were aware of the Arctic region. Day and night were equal to the year to the residents of the place. This means a day and a night of six months. The deity especially *Ushā* figures prominently in the Vedic literature because people of the Arctic region in the North were much anxious after prolonged darkness for welcoming the dawn. Archaeology and Geology prove the existence of human remains in this region. Some of the skeltons were identified with the Aryans.

The word '*Arya*' denotes culture but not race. Culture derived from the comparative philology cannot have favourable atmosphere in the Arctic Region. The Vedic passages do not seem to indicate such a meaning as B.G. TILAK suggests, for the natural meaning of the passages is so clear and distinct that there is no need to have recourse to forced interpretation. The Vedic hymns show the acquaintance of *Rishis* with the cooler countries but they can know it by Geography and Astronomy; It does not mean their residence. As *Rishis* were also poets, the verses are based on poetic fancy but not on actual facts.

GREENLAND

STRZYGOVSKI's[1] suggestion that Greenland was the original home of the Aryans deserves no more than a passing mention.

SWEDISH COASTAL REGION

T.J. ENGELBRECHT,[2] thought that the Swedish coastal region was marked by the use of horse and chariots after the end of the Stone Age. These provided them with a superiority in fighting and they made full use of it—and it reflected itself in the expansion of the Indo-Germanic speeches. This region was, therefore, to be considered as a claimant to the original home of the Indo-Europeans.

SCANDINAVIA

A German Scholar named PENKA tried to prove that Scandinavia was the cradle land of the Aryans. The Aryans described in the *Vedas* are tall and had white skin, radiant complexion and fair hair. Those Aryans, who migrated over the whole world, must have been full of energy, tall and fair people, and were of Scandinavian origin for the Scandinavians represent the energetic, tall and fair type of race. Blonde hair was the chief characteristic of these people, This region also fits in with linguistic philology. Old and simple implements have been found here in abundance, and they are attributed to the Aryans.

There was a struggle between Semitism and Aryanism, and this theory was used as a tool for the racial superiority. There was no casual relation between crania and intelligence but environments according to ethnologists. This region was too vast area for the Aryan home.

1. *Hirt Festschrift*, I, p. 174.

2. *Die Urheimat der Indo-Germanen*, Glueckstadt, 1933.

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CENTRAL GERMANY

The theory of central Germany of Jutland as the home of the Aryans owes itself primarily to G. KOSSINA,[1] and H. HIRT.[2] Their main argument is based on the close links of the Finno-Ugrain speech as well as of the Lithuanian to the primitive Indo-European tongue as to suggest a vicinity of the habitat of these languages to the original home. It is a linear successor of the idea of the Scandinavian cradle, and is now no more supportable than its Scandinavian counterpart, though it is possible that the original home lay not very far from the suggested Central European scene.

DANUBE VALLEY

P. GILES[3] asks the question, "Is there any part of the earth which combines pastoral and agricultural country in close connection, which has in combination hot low-lying plains suitable for the growth of grain, and rich upland pasture suitable for flocks and herds, and at the same time trees and birds of the character already described ? There is apparently only one such area in Europe, the area which is bounded on its eastern side by the Carpathians, on its south by the Balkans, on its western side by the Austrian Alps and the Bohlmer Wald, and on the north by the Erzgebirge and the mountains which link them up with the Carpathians. This region is protected by natural boundaries. It contains huge population. It is called corn producing area and at the same time, it can provide pasture for sheep and cattle. Here proto-Aryans lived in tranquility for centuries to develop their languages and their distinct culture. From this region, the Aryans began to migrate because of the failure of crops and increase of population. They moved towards Asia and crossed the Bosporus and the Dardanells across the plateau of Asia Minor or along its fertile slopes on the south side of the Black Sea reaching Persia *via* the upper waters of the Euphrates and Tigris. Their southward migration was checked by the powerful Mesopotamian monarchy. The Aryan migration into Asia was not in one but in many waves in intervals of times. Thus P. GILES locates the home of the Aryans in the area which includes Hungry, Austria and Bohemia.

There is no evidence of climatic change in the valley. Why should the Danubeans dare to cross the mountains and unhospitable regions ? Nor do the Danubean manners of life really correspond very satisfactorily to the primitive Aryan Culture deduced by linguistic philology. The absence of arrow and the presence of the cult of Mother Goddess are contrary to Aryan Culture. It is a highland country broken up by valleys and hills, and is, therefore, not suitable for the early acquaintance with the swift horse. The archaeology shows that some other racial people but not the Aryans settled in the Danube valley.

1. *Die Indo-Germanen.*
2. *Indo-Germanische Grammatik.*
3. *Cambridge History of India*, I, pp. 58-68.

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SIBERIA

J. DE MORGAN[1] expressed the view that Siberia in north-east Asia was the original home of the Aryans at a time when Europe was passing through the Ice Age, and Siberia had Semi-tropical conditions. After the glacial period, the *Centum* speaking people moved westwards into Europe into the Danube region. The *Satem* speaking people moved instead towards Persia, and later to India. Even MORGAN'S theory of the Siberian home is clearly subjective and does not lend itself to any objective support.

CENTRAL ASIA

ADOLF PICTET[2] argued in favour of the original home of the Aryans in Central Asia as a central place from which the Aryans could be supposed to have migrated to all countries. Zend and Sanskrit were more archaic in character as compared with the European languages such as Greek and Latin. From this, it may be inferred that Asiatic languages deviated less from the Aryan mother tongue than the sister European languages. The speakers of the Asiatic languages must be regarded as moving round the regions where the original standard language or the Aryan mother tongue was spoken, for the greater was the distance, it was argued, the greater was the change in the language and therefore, the speakers of the Aryan mother tongue namely the Aryas must have originally come from Central Asia.

JARL CHARPENTIER[3] argues that the fathers of the Indo-Europeans lived in a mountainous country with a temperate climate but they did not know the use of shell fish. They used the horse for riding. They knew birch and willow but had no knowledge of fruit, trees and vegetables. They could crush corn and had no acquaintance with salt. They probably lived on meat and milk, and they led a nomadic life.

This region is famous in history for breeding a different people such as the Yūchīs, Śakas and Hūṇas who migrated from this place. From this, it may be inferred that the Aryans might have migrated from this region to India and Europe. The earliest Aryan languages are influenced by Sumerian languages. Therefore, it is important to bear in mind that the original home of the Aryans should not be far away from Mesopotamia.

The Aryas could not be supposed to be the ancient neighbours of the Asiatic hordes of people such as the Mongols or the Hūṇas for the Aryan language totally differs from the languages of these people and betrays no indication of its being a neighbour to them. It is wrong to suppose that the undivided Aryans were nomads themselves. The view that the Aryans could crush corn but where did they get the

1. *Prehistoric Orientales*, pp. 172 ff; Des. Origines des Semites et de celles des Indo-Europeans, in the *Revue Synthese Historique*, Vol. XXXIV, Nos. 100-102. (Reprinted-*Ephemerides Bibliographiques*, June-July 1923).
2. V. Gordon Childe, *The Aryans*, pp. 11 and 95.
3. The Original home of the Indo-European, *Bulletin of the School of Oriental and African Studies*, IV, 1926, p. 164.

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corn to crush if they were not agriculturists and were nomads only? Central Asia has no honey bees, but honey was a common article of food with the undivided Aryans as is shown by the common Indo European word '*Madhu*'. No traces of Aryan are found in China. Chinese language is quite different from the Indo European languages. If the Aryans had lived in Central Asia, they would have migrated towards China which is quite close, and dominated the culture of that country.

Scholars generally on philological grounds tried to prove Central Asia as the original home of the Aryans. D.P. MISRA[1] on the basis of the geographical data given in the *Vāyu Purāṇa* and the *Matsya Purāṇa* has recently tried to prove it. This region was called *Devaloka* because it was inhabited by the *Devas* and ruled by the Indras in succession with different parentages and personal names. The *Vāyu Purāṇa* mentions *Devaloka* as *Meru* which has been identified by scholars with the plateau of Pamir and the lands around it. *Devaloka* situated in the region of *Meru* comprises the vast tract extending from the river Oxus to the Arctic ocean. The excavations carried out by the Soviet archaeologists on several sites in Turkemenistan prove that a close connection existed between the people of Central Asia and Indus Valley. This archaeological evidence reinforces the tradition embodied in Indian literature that the Asuras, when expelled by the Devas from Central Asia or Puranic *Devaloka*, found asylum in *Patala* which is equated with Hyderabad (Sind) on the evidence furnished by Greek writers. Further, Central Asia appears to have been the breeding ground of most of the racial types known in India.

Against this view, it is suggested that much weight cannot be given to the traditions embodied in the *Purāṇas* which are of very late origin. There were connections of the Indus Valley not only with Central Asia but also with other regions. It does not prove Central Asia as the original home of the Aryans.

INDIA

Some of the scholars have advocated India as the original home of the Aryans. MM. GANGANATH JHA[2] has suggested the Brahmarshi-deśa; D.S. TRIVEDA,[3] the region of the river Devikā in Multan; and L.D. KALA,[4] Kashmir and the Himalayan region. A.C. DAS[5] is also the advocate of this theory. Their main arguments are summed up as follows.

(1) There is no evidence in Vedic literature to indicate that the Aryans were foreigners. On the other hand, there is sufficient material to prove that the Vedic Aryans themselves regarded *Sapta-Sindhu* as their original home (*devakrita-yoni* or *devanirmita-deśa*). The migrating races remember their original home for centuries.

(2) The Vedic Sanskrit has the largest number of vocables found in the Aryan languages. These are preserved in the languages of the sanskritic family in different parts of India even when there has been inter-racial contact for centuries.

1. *SITPHOI*, pp. 1-23.
2. *D. R. Bhandarkar Comm. Vol.* pp. 1-2.
3. *ABORI*, XX, pp. 48 ff.
4. *POC*, VI, pp. 723-24.
5. *Rigvedic India.*

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On the other hand, if the pre-Vedic Aryan language was spoken in different parts of Europe and Asia where the Aryans had settled before coming to India, how is it that only a few vocables are left in the present day speech of those parts, while the largest number of them is found in distant places of ultimate settlement and racial admixture in India ? On the contrary, this can be explained only by supposing that India was the original home of the Aryans and they went to Europe and Asia afterwards.

(3) From the comparative Philology and mythology, *Veda* preserves not only the language of the undivided Aryans but also their entire religion, spirit and culture which it could not have succeeded in retaining if it had been composed in a land far away from the original home of the Aryans since the literary compositions of the other tribes in different countries could not retain in all its purity the language and culture of undivided Aryans.

(4) The Vedic literature is the earliest extant record of the Aryans, and they reached a high stage of cultural evolution in India. It is difficult to explain that in course of their journey to Sapta-Sindhu, the Aryans left no such record anywhere. This is possible if there is migration of the superflous population of the Aryans with no cultural traditions to the countries in which they ultimately settled.

(5) The sacrificial rituals had long been established before the compilation of the *Saṁhitā*. Therefore the home of Soma, the Mūjavant or Muñjavant hills in the north of the Punjab indicates the locality from which the sacrificial rituals developed.

(6) It is often argued that Lithunia being the most archaic in the Aryan family of languages, it is likely to be the original home of the Aryans. But this language remained archaic because persons using it were unprogressive and they remained in a locality where no fusion was possible with races speaking other languages.

(7) The geographical data of the *Rigveda* as analysed in Ch. XIII clearly show that the Punjab and the neighbouring regions constituted the home of the people who composed these hymns. There is no good ground for the belief that they or their ancestors lived in any other country.

A large number of Indo-European languages are comparatively found in Europe and only at a few places in Asia. The geographical distribution of the idioms of the Indo-European speech-family, therefore does suggest that the original home of the Indo-Europeans is to be sought rather in Europe than in Asia. Moreover of all the living Indo-European languages of the present day, it is Lithunian, and not Sanskrit that has kept closest to the basic idiom reconstructed by comparative Philology.

Had India been the original home of the Aryans, they would have certainly tried fully to Aryanize the whole of the sub-continent before crossing the frontier barriers in quest of the adventure. The fact that the whole of south India and some parts of north India too are to this day non-Aryan in speech is the strongest argument against the Indian-home hypothesis, especially as the existence of a Dravidian speech-pocket (Brāhui) in Baluchistan clearly suggests that the whole or

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at least a considerable part of India was originally non-Aryan in speech. The cerebral sounds of Sanskrit which sharply distinguish it from all the other Indo-European speech families, including Iranian, are best explained as the result of Austric and Dravidian influence on the language of the incoming Aryans. If the decipherement of the script of the seals of Harappan culture is proved as Sanskrit language, India can be considered to be the home of the Aryans.

SOUTH RUSSIA

It was NEHRING,[1] who first propounded the theory of the South Russian home, and he was supported by several Scholars O. SCHRADER,[2] H. PEAKE, H.J. FLEURE[3] GRIERSON,[4] GORDON CHILDE[5], B.K. GHOSH,[6] RICHARD HAUSCHILD[7] and BRANDENSTEIN.[8] NEHRING felt that the region of the original home extended naturally towards the west, making an inroad into Europe. Their arguments for this theory are as follows :—

(1) The Tripolje pottery found in South Russia is dated in the third millennium B.C. It has induced NEHRING to formulate the view that Tripolje Culture is the culture of the original Indo-Europeans.

(2) In about 2000 B.C., the Hittites in the West occupied Asia Minor and the undivided Indo-Iranians took possession of the plains of the Oxus. These seem to be the two oldest Indo-European tribes. It is legitimate to conclude that the original Indo-European home was equidistant from the Oxus and Asia Minor. This region should have lain in the south of Russia as suggested by NEHRING, O. SCHRADER and others, but it cannot be central Europe or India.

(3) There is the preponderence of Indo-European elements in the Finno-Ugrian language. It would imply vicinity for the parental Indo-European home. The archaic character of the Lithunian is considered to be the nearest to the original Indo-European tongue. The original home cannot be far away from the habitat of the Lithunians. This is corroborated also by the occurrence of Indo-European elements in the Semitic language. This implies that Semites were in contact with the early Indo-Europeans. Therefore, the original habitat of the Indo-Europeans should have been somewhere in the neighbourhood of the Semites as well. All these indicate the region which is within easy reach of the Lithunians, Finno-Ugrians, Hittites and Semites alike.

(4) The discovery of Tocharian, a *Centum* dialect of the Indo European in Eastern Turkistan also proves the theory of South Russian home.

1. *Studien Zur Indo-arischen Kultur und Urheimat* pp. 27, 59-61.
2. *Sprachvergleiohung und Urgeschichte*, Jena, 1883.
3. *The Steppe and the Sown.*
4. *Linguistic Survey of India*, Vol. I, Part I, 1927.
5. *The Aryans*, pp. 183-204.
6. *The Vedic Age*, The History and Culture of the Indian People, pp. 201-212.
7. Revised Edition of Albert Thumb's *Handbuch des Sanskrit*, Heidelberg, 1959.
8. *Die erste Indo-germanische Wanderung, Klothe*, II Vienna, 1936.

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DIFFERENT ARYAN TRIBES AND THEIR HISTORY

The theory of South Russia as the original home of the Aryans seems to be more plausible than the others. From this region, they moved to the different parts of Asia and Europe probably at intervals in groups. The main tribes known among the Aryans or Aryan speaking people are the Hittites, Mitannis, Kassites, Greeks, Iranians and Indo-Aryans.

HITTITES

The oldest known Aryans or Indo-European speaking people are the Hittities who moved from an unknown source to Asia Minor before 1950 B.C. and settled in new land which became famous as Hatti after their name. The cuneiform archives of the capital city, Hattusa, now called Boghaz Keui (Boghaz Kāle in modern Turk) have yielded a mass of information regarding these people. The archaeological excavations and the cuneiform inscriptions throw light on their history. There are two phases of their history. The first known as old Imperial phase lasted between 1740 and 1460 B.C. and the succeeding one, called the New Empire, lasted from 1460 to 1190 B.C. The second Hittite empire was terminated by the onslaughts of the Thraco-Phrygians about 1190 B.C. The Hittites were forced to vacate this land, and they moved towards Syria where they set up a new settlement. They ruled this territory upto 709 B.C. when their territory was conquered and seized by the Assyrians. In course of time, the Hittites of Syria adopted a hieroglyphic script and also a differed Indo-European language.

MITTANNIS

The Mitannis are known to have established their kingdoms in the northern parts of Mesopotamia, and they ruled between the end of the 16th and 14th centuries B.C. The documents of Boghaz Keui, Assyrian and Egyptian records, royal inscriptions and Tell-el-Amarna letters throw light on the history of the Mitanni kingdom. Parshatar was the founder of the Mitanni ruling dynasty with the capital at Wasuganni[1] which has not yet been definitely identified. The Egyptian record of Thatmos III about 1483 B.C. makes a reference to *Maryanni*, the chariot warriors among the Mitannis as a ruling class in the land called Naharina.[2] During the rule of Amenophis II (1447-1420 B.C.), Egypt counted Mitanni among her allies. Thatmos IV (1420-1411 B.C.) married the daughter of Mitanni king Artatama I. This lady became the mother of Amenophis III (1411-1375 B.C.). The latter king of Egypt married the daughter of Surtana son of Artatma I. Dushratta, the son of Sutarna, maintained good relations with Egypt and his daughter was married to Amenophis III. Dushratha was assassinated by his son Mattiwaja. Meanwhlie another son, Artatma II sought the aid of the Hittities, then ruled by Suppiluliuma, to make an attack on the ruling prince. Mattiwaja

1. B. Hrozny thought that it was the same as Ras-el-Ain on the Habur.
2. Naharina, the land of the Mitannis, is also called Hannigalbat in Assyrian inscriptions.

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was defeated but he entered into a treaty with Suppiluliuma about 1365 B.C. By this treaty, the Mitanni kingdom entered into a state of vassalage under the Hittites.

KASSITES

About 1760 B.C., Babylonia fell into the hands of the Kassites who are known to have used the words *Shuriash* (*Sūrya*-Sun), *Marutash* (*Marut*-Wind) and Buriah (Boreas, the Greek God). They ruled in upper Mesopotamia for nearly six hundered years upto 1171 B.C. when they were hurled down from their ruling position by the Assyrians.

GREEKS

One of the Indo-European speaking tribes or Aryans should have entered Greece for the first time in about 1200 B.C. But there is nothing to tell from which particular region precisely these people known as the Greeks came. These invading Greek people found a previously existing non-Aryan race of Minoans with which they mingled. No doubt the language of the Greeks prevailed but even the language of the conquered supplied innumerable names and words to its vocabulary. The conquered Greeks must have adopted to some extent Mycenaean culture.

UNDIVIDED INDO-IRANIANS

The undivided Indo-Iranians characterized by *Satem* dialect must have left their original home after the Hittities. After some wanderings, they settled down at a place known as Indo-Iranian original home which was situated in the Pamir region or more probably the plains of the Oxus and Jaxartes. This land '*Erānvej*' of the two rivers Vahvī Datiyā and Ranhā[1] has been mentioned as the home of the undivided Indo-Aryans in the *Avesta*. In this region, these undivided Iranians must have lived for some time, and developed a specific Indo-Iranian culture and religion that may be reconstructed at least partly by comparing the *Veda* with the pre-Zarathustrian heathenish *Yasts* which have suffered least from Zarathustrian revision. The civilization of the *Gāthās* is a later reformed civilization of Iran. This new development in religious and economic spheres of the Aryans might have been due to the contact with the local people who were more cultured. Before the occupation of the Iranian Plateau and North West India by the undivided Iranians, there was already pre-Aryan superior culture.

Before parting their company for Iran and India, their society ceased to be culturally homogeneous. The primitive Indo-European religion recognized only nature gods (sky, sun, wind, etc.) and fire cult. But these undivided Indo-Iranians knew a Soma-cult besides the older fire cult and abstract deities besides the older nature gods. Their parting was more the effect than the cause of the cultural contrast revealed in religion. The old Indo-European term *deivo* (Indo-Iranian *deiva*) was apparently considered inappropriate for the new abstract and ethical

1. *Iran in the Ancient East*, 1941, p. 190.

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deities. A new term *Asura* perhaps borrowed from a higher civilization came to be used as their designation. *Varuṇa* was the chief of three ethical deities just as Indra was the chief of older nature-gods. This type of antagonism between the worshippers of the *Daiva* gods (old) and the *Asura* (New) gods took place after 1365 B.C. because in a treaty record discovered at Boghaz Keui, the *Daiva* gods Indra and Nāsatya appear side by side with the *Asura* gods.

Their antagonism was not confined to the field of religion alone. CHRISTENISEN[1] has suggested that the Asura religion was practised by the more cultured and steadier elements of the primitive Indo-Iranian Society whose chief occupation was agriculture and cattle breeding while the older *Daiva* religion continued to find favour with the more vigorous and less civilized portions of the people to whom the primitive predatory habits were more congenial. The former were content to remain behind Iran but the later urged by the spirit of adventure, advanced further east and at last entered India. But all those remained behind in Iran were not exclusively *Asura*-worshippers, some were even *Daiva*-worshippers. Along with the *Daiva* worshipping Aryans, came to India also a culturally superior minority of *Asura* worshippers whose cult and religion was slightly different from the Vedic Aryans who cursed and condemned them more out of jealousy than contempt.

The Iranians had retained a distinct memory of the Indo-Iranian common home (*Erānvejo*) in their mythology, but the Indo-Aryans who have developed their distinctive Indian Rigvedic culture have nothing to say on this point. The silence maintained by the earliest Vedic Aryans on this point seems to be intentional for some of the geographical names Rasā, Sarasvatī and Bāhlika applied to two Indian rivers and one Indian province prove beyond doubt that the period of immigration had not been so long as to have completely obliterated all memory of land they left behind. If those parts of *Rigveda* in which Iranian name had occurred, it could have been presumed that they were written in Iran.

COMMON ELEMENTS BETWEEN VEDIC AND IRANIAN CULTURES

Inspite of *Daiva*-bias of the Indians and *Asura*-bias of the Iranians, their culture and religion continued to be the same.[2] A large number of common cult words such as *haoma* (*Soma*), *Zaotar* (*hotā*), *athravan* (atharvan), *manthra* (mantra), *Yazata* (=Yajata), *Yasna* (*Yajña*), *āzūiti* (=*āhūti*), etc., and also the whole sacrificial cult leave no doubt that Vedic and Avestan ritual are of one and the same origin. Zarathustrian reform could not materially alter the essentially Vedic character of the Soma cult cherished in Iran from ages before this time. Both in the *Veda* and the *Avesta*, the ceremony of *Upanayana* is the same. The conventional number of gods remained thirty-three, The picture of the gods is primarily that of an heroic Aryan warrior riding in a chariot drawn by powerful steeds. Like the Vedic gods, those of the *Avesta* too hold up the sky to prevent the falling down, and image worship is equally unknown in the *Avesta* and the *Veda*. Varuṇa, like

1. *Kulturgeschichte des Alten Orients*, pp. 211-212.

1. *The Cambridge History of India*, I. pp. 286 ff; *The Vedice Age*, pp. 218 ff.

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his Avestan opposite number *Ahura* assisted by Mitra (Avestan Mithra) is the supreme guardian of moral law, and the conception of cosmic order is represented in both by the same abstract deity, the Vedic *Rita*=Avestan *Asa*. Even the minor Vedic god Apām-napāt is represented in the *Avesta* by a god of the same name. To the Vedic Gandharva corresponds to the Avestan Gandarewa, and to the Vedic Kṛiśānu the Avestan Kereśāni. In the *Veda*, Yama, the son of Vivasvat, is ruler of the dead, in the *Avesta*, Yima, the son of Vīvanhant, is the ruler of Paradise. Thus, the ancient Aryan culture of Iran was hardly distinguishable from Ancient Aryan culture of India because both are derived from one and the same Indo-Iranian culture.

THE DATE OF VEDIC CULTURE

The date of Vedic culture in India is another problem which has baffled scholars, and they hold divergent views. The earliest date so far suggested for Vedic Culture is 2500 B.C. B.G. TILAK[1] considered the date to be 8000 B.C. H. JACOBI[2] put forth the view that *Vedas* should be placed in 4500 B.C. M. WINTERNITZ[3] placed the date of this work in the latter half of the third millenium B.C. F.E. PARGITER[4] considers the Aryan immigration to have taken place about 2000 B.C.

MAX MULLER[5] thought that *Rigveda* could not be later than 1200 B.C. On the basis of the development of vedic literature he divided the Vedic period into four, that of the *Sūtra* literature, 600-200 B.C. the *Brāhmaṇas* 800-600 B.C., the *Mantra* period, including the later portions of the *Rigveda*, 1000-800 B.C., and the *Chhandas*, covering the older and more primitive Vedic hymns, 1200-1000 B.C. A.B. KEITH[6] opined, "To opine the date further back than 1200 B.C. is impossible on the evidence at present available". B.K. GHOSH[7] has suggested from a purely linguistic point of view that the *Rigveda* in its present form cannot be dated much earlier than 1000 B.C. The language of the *Rigveda* is certainly no more different from that of the *Avestan Gāthās* and therefore, they must be assigned to approximately the same age. The language of the *Gāthās* developed from the old persian inscriptions of the sixth century B.C. Further it is now generally admitted that by all that Pāṇini lived obout 400 B.C. and the language used by Pāṇini is known to us in every detail; it is essentially a literary language from which the author tried to exclude Vedisms, on the one hand, and *Apaphraṁsa* or *Loka bhāshā* forms on the other. The difference between Pāṇini's language of the *Rigveda* is certainly not greater than that between, say, the forms of English used by CHAUCER and BERNARD SHAW. The conclusion is, therefore, justified that, whatever the date of the contents of the *Rigveda*, its language can by no means be dated much earlier than 1000 B.C.

1. *Arctic Home in the Vedas*, pp. 453-55.
2. *IA*, XXIII (1894) pp. 154 ff.
3. *History of Indian Literature* (Eng. Trans). by Mrs. S. Ketkar, Vol. I p.
4. *AIHT*, I, pp. 99-100.
5. *CHI*, I, pp. 99-100.
6. "The Aryans and the Indus Valley Civilization," *Ojha Vol*. Sect. I, pp. 58-66.
7. *The Vedic Age*, p. 203, *The Cultural Heritage of India*, pp. 136-137.

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M. WHEELER[1], L. WOOLLEY[2] and some other archaeologists place the advent of the Aryns in 1500 B.C. primarily because they hold that the Harappan civilization was destroyed by the Aryan civilization. Three cemeteries were found at Harappa, cemetery R 37, Cemetery H II and cemetery H I. It has been sometimes suggested that the uppermost Cemetery H I represents the culture of the Aryans and as it immediately supervenes cemetery R 37, which represents the Harappa culture, it shows that the Aryans came, conquered and destroyed the Harappan culture and squatted upon the site of the devastated city.

It is true that the cemetery H I represents an alien culture altogether different from the Harappan one. There is, however, no shred of evidence to show that the cemetery H I culture was of Aryans. Cremation was the normal method of the disposal of the dead in the Vedic period and the burial which is referred to in the *Rigveda* was only a survival of a bygone age. There is thus no archaeological evidence to show that the Aryans destroyed the Harappan culture in a few years by 1500 B.C. The date assigned to this event is purely conjectural and tentative.

HUSSING asserts that the Aryan dynasties we meet in the Boghaz Keui inscription of 14th century B.C. were Aryans on their way to India. HRONZY'S[3] view seems to be the same. He says, "Migrating from the original home north of the Caucasus, the Aryans reached North Mesopotamia sometime in the first centuries of the seeond millennium B.C. Similar is the view of V. GORDON CHILDE[4] and S. PIGGOTT[5]. V. GORDON CHILDE holds that after crossing the Caucasus, the Aryans got divided into two branches. The western wing reached the territory of Mitanni kingdom before 1500 B.C. and the eastern wing descended into India 1400 B.C. He, however, also thinks that the Aryans had begun infiltrating into Mesopotamia two centuries earlier in the time of Hammurabi. If such was the case, they could have reached India also earlier than 1400 B.C. As evidenced by the remains found in the excavations at Rana Ghundai, Mohenjodaro and Chanhudaro, S. PIGGOTT has tried to show that frequent invasions from the north-west of the barbaric Aryan tribes were responsible for the destruction of the urban culture.

P.L. BHARGAVA, A.D. PUSALKAR and H.D. SANKALIA relying on the literary evidence of the *Vedas* and the *Purāṇas* place the date of Vedic culture much earlier. P.L. BHARGAVA[6] by correlating the Vedic and Puranic data thinks that the Aryans came to India under Manu Vaivasavata and after the Great Flood, from somewhere in the north and settled in Saptasindhu in about 3000 B.C. A.D. PUSALKAR[7] takes 1400 B.C. as the provisional date for the Bhārata war. The age of Manu Vaivasavata, who flourished according to the genealogies prepared on the basis of traditional accounts, 95 generations before the Bhārata war, can be put as $(95\times18+1400)=3110$ B.C., taking one generation to average 18 years. This date, viz. 3110 B.C., curiously enough approaches 3102 which has been taken as the beginning of the hypothetical Kali age for astronomical calculations. There is no

1. *The Indus Civilization*, p. 82.
2. *History of Mankind, Cultural and Scientific Development*, Vol. I.
3. *Ancient History of Western Asia, India and Crete*, p. 113.
4. The *Aryans*, p. 31.
5. *Prehistoric India* p. 251.
6. *India in the Vedic Age*, pp. 268-270.
7. *ABORI*, XVIII, 1937.

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doubt that the date 3102 signifies some important and epoch-making event in the traditional history of India. It denotes the period of the beginning of the rule by Manu Vaivasvata. A.D. PUSALKAR also regards Harappa civilization as Aryan civilization.

On the basis of the C-14 dates now available for a number of excavated sites and BHARGAVA'S chronological theory, H.D. SANKALIA[1] seems inclined, though hesitatingly, to regard all the protohistoric phases from the Harappan down to the P.G. Ware, as belonging to the Aryan civilization. To justify his hypothesis, he has sub-divided this long span, approximately from 3000 B.C. to 1000 B.C. into the following sub-phases :—

1.	*C.* 3000 B.C. Early Aryan habitation in Saptasindhu	Indus or Harappan civilization.
2.	*C.* 2500 B.C. Aryan Expansion in the Gangetic valley and Gujarat (Saurashtra).	Spread of Indus civilisation in the Gangetic Valley and Saurashtra.
3.	*C.* 2000 B.C. First break-up of the five Aryan tribes and dispersal from the Saptasindhu.	(a) Central Indian Chalcolithic. (b) Banas or Ahar Culture. (c) Neolithic Culture, of the Deccan.
4.	*C.* 1500 B.C. Further Expansion, eastward and southwards.	(a) Jorwe-Nevasa Cultures. (b) Sonepur, Pandu Rajar Dhibi. (c) Rangpur. (d) Somnath.
5.	*C.* 1000 B.C. The Bhārata war	Painted Grey Ware.

A.S. ALTEKAR[2] has shown that there are a good many instances where the Puranic incidents and names of kings occur in Vedic literature and therefore, in such cases at least the Puranic accounts can be believed. He dates the Bhārata war to 1400 B.C. and counting backwards by assigning 15 years to each generation places the Vedic period from 2700 B.C. Later on, A.S. ALTEKAR somehow revised his earlier views. By synthesizing the fourfold evidence: (1) Western Asian Archaeology, (2) Indian Archaeology, (3) Vedic texts and (4) Pauranic genealogies, he suggested that the Aryans came into India and established their kingdom in 2000 B.C., the same would be the beginning of the Vedic Age. They took 200 years in reaching Banaras and Videha in the east and Narmada Valley in Madhya Pradesh. Thus, they occupied these regions in 1800 B.C. They lived together with the Harappans for about five or six centuries i.e. upto 1400 B.C. The hymnal activity started in 2000 B.C. and the canon was being fixed in 1100 B.C. The Vedic age can, therefore, be well placed between 2000 B.C. to 1100 B.C.

1. *IP*, p. 226.

2. *PIHC*, Third Session (1939), pp. 33-57; and Twenty Second Session (1959).

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To fix the date of Vedic Culture in 3000 or 2000 B.C. by some scholars simply on the basis of genealogies of the Purāṇas counted from the Bhārata war and of the evidence of archaeology does not seem to be correct. The Purāṇas compiled in the fourth or fifth century A.D. cannot be regarded as the trustworthy source regarding the Aryans who lived much earlier. Further, the Bhārata war itself has been considered to be a myth by some eminent scholars[1].

Boghaz Keui in Asia Minor is the earliest place yielding mass information of the existence of Indo-European language in the form of cuneiform inscriptions from 1950 B.C. to 1190 B.C. In about 1760 B.C., Kassites, who ruled in Babylonia, are known to have used the words *Shurash* (Sūrya=Sun), *Marutash* (Marut=Wind) and *Buriash* (Bureas, the Greek god). The clay tablets with Babylonian cuneiform script of the fifteenth and fourteenth centuries B.C. discovered at El Amarna in Egypt have revealed the fact that numerous dynasties with Indo-Iranian looking names (such as *Artamanya*, *Arzawiya*, *Yaśdata*, *Śuttarna*, etc.) were ruling in Syria about the same time. Linguistic evidence derived from these regions definitely proves that Indo-European language-forms current here are undoubtedly much older than the oldest Avestan or Vedic Sanskrit known to us. Nothing can be said about the language of the Harappan script which has not yet so far been deciphered. In comparison with Asia Minor, Syria and Egypt, there is no contemporary evidence associating the Aryans with India. On the evidence of the Purāṇas, it is nothing less than absurd to think that the Aryans migrated to these regions from India.

The material aspect of the people revealed from the study of pre-Harappan Culture (2700-2100 B.C.), Harappan Culture (2350-1750 B.C.), Chalcolithic Culture of Malwa, Banas, Northern Deccan, Deccan, Gangetic *Doab* and Eastern India (1750-1000 B.C.) does not seem to tally with that of the Vedic culture. The Vedic culture appears to be rural. Developed iron industry and swift moving horses are the characteristics of Vedic culture without which Vedic Aryans would not have established their supremacy over the natives. Both these are found to be absent in the above cultures.

The *Rigveda* contains the geographical data as to the gradual expansion of the Aryans and their settlements in Northern India. The term *Saptasindhavah* as used in the *Rigveda* means their definite country. These are five rivers of the Punjab along with Indus and the Sarasvatī. It means the Punjab and the neighbouring regions. The river Sarasvatī described as *par excellence* was their central habitat. These above cultures known from the archaeological excavations do not appear to be related with this specific region.

Linguistically, the *Rigveda* appears to have been compiled in about 1000 B.C. The Aryans came to India one or two hundred years earlier i.e. 1100 or 1200 B.C., and their hymnal activity started from this period. Thus the date of the Vedic culture is from 1200 B.C. to 600 B.C. Archaeologically, this fits well with the Vedic culture. From the excavations, it is clear that both horse and iron were well-known during this period. Some scholars like B.B. Lal[2] attributed the Painted

1. *MMARDV*, pp. 4-8.

2. *AI*, 10 and 11, p. 13.

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Grey Ware which was used in this region to the Aryans. The pottery depends upon soil and climate of the region, and it can hardly be identified with the culture of any race. Besides Painted Grey Ware, other types of pottery are also found in this region.

The tumult and upheaval caused by the Thraco-Phrygian invasion of Asia Minor in 1200 B.C. led to the widespread folk movements in all directions. Its effect on the Aryan immigration into India can on this ground be suggested. This also fixes the beginning of the Vedic age from about 1200 B.C.

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CHAPTER XIV

THE RIGVEDIC AGE

The *Rigveda* is the earliest literary work which the Aryans have left to posterity. It is a collection of 1017 hymns, supplemented by eleven others called *Vālakhilyas*. It is systematically arranged into ten *maṇḍalas* or chapters. These hymns represent compositions of different periods by priestly poets, of various families. It gives some idea about the gradual expansion of the Aryans and their settlements in the early Vedic period. It is purely a religious work, most of the hymns are all invocations to the gods conceived as personifications of the powers of Nature to bestow spiritual and material favours on the devotees. Some hymns specially concerned with the *dānastutis* or 'praises of liberality' throw light also on the political, social and economic aspects of the early Vedic Period. No doubt this information though scanty is valuable in the absence of another such work giving glimpse of the distant past.

EXPANSION OF THE ARYANS AND THEIR SETTLEMENTS

The *Rigveda* contains some geographical data as to the gradual expansion of the Aryans and their settlements in northern India. It gives the names of the rivers, mountains and tribes, the identification and location of which are difficult because their boundaries were subject to constant modifications, and they were known by different names in different periods. But inspiteof these difficulties, it is possible to form a fair idea of the location of quite a large number of them.

AFGHANISTAN

The Aryan occupation of the modern region of Afghanistan is proved by the mention of the *Kubhā* (Kabul), the *Suvāstu* (Swat) with its 'fair dwellings, the *Krumu* (Kurram) and *Gomatī* (Gomal). But far more important were settlements on the *Sindhu* (Indus), the river *par excellence*, from which India has derived its name, and it was the boundary on the west. This is more in keeping with the ancient cultural aspects rather than the present geographical limitations.

PUNJAB

The settlement in the Punjab to which the five rivers give its name and which after uniting flow into the Indus are also mentioned in the *Rigveda*. The *Vitastā* is the modern Jhelum and others are the *Asikni* (Chenab), the *Parushṇī*

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(Irāvatī), *Vipāś* (Beas) and *Sutudrī* (Sutlaj). But of these only the *Parushṇī* plays a considerable part in the history of the time, for it was on this river that the famous battle of the ten kings, the most important contest of Vedic times was fought. Far more important was *Sarasvatī*, the river *par excellence* which occurs frequently in the *Rigveda*, and is generally identified with the modern Sarsuti.[1]

SAPTASINDHAVAH

The term *Saptasindhavah* as used in the *Rigveda* signifies seven rivers. According to MAX MÜLLER, the seven rivers are the five rivers of the Punjab along with the Indus and the Sarasvatī.

IN THE EAST

In the east, the Aryans had reached the Yamunā which is thrice named and the Ganges which is once directly mentioned. That Vedic people had not yet penetrated into the swarmy jungles of Bengal may be inferred from the absence of the mention of the tiger in the *Rigveda*.

IN THE NORTH

In the north, the *Himavant* or Himalya mountains were well-known to the Rigvedic sages, and one peak that of Mujavant is referred to as the source of *Soma*, the intoxicating drink which formed the most important offering in the religious practice of the time.

IN THE SOUTH

In the south, on the other hand, the Vindhya hills are unknown, and no mention is made of the Narmadā river so that it may fairly be inferred that the Aryan tribes had not yet begun their advance towards the south.

Thus, the expansion of the Aryans as reflected in the hymns of the *Rigveda* is Afghanistan, the Punjab, parts of Sind and Rajasthan, the North West Frontier Province, Kashmir and Eastern India up to the Ganga.

THE TRIBES IN THE RIGVEDA

The whole of the territory known to the *Rigvedic* settlers was divided into a number of tribal principalities ruled normally by kings. The *Dāśarājña* or the battle of the ten kings is an important historical event, and as many of the important tribes and principalities figured in this battle. Sudās was a *Bharata* king of *Tṛitsu* family. At first, Viśvāmitra was the priest of Sudās, but Viśvāmitra was dismissed by Sudās who appointed Vasishṭha as his priest. In revenge, Viśvāmitra led a tribal confederacy of ten kings against the *Bharatas*, the federation consisting of the five well-known tribes *Pūru*, *Yadu*, *Turvaśa*, *Anu* and *Druhyu*, along with five of little note, viz. *Alina*, *Paktha*, *Bhalānas*, *Śiva* and *Vishāṇin*. In the bloody and decisive struggle on the *Parushṇī*, the *Bharatas* emerged victorious, utterly routing the

1. The present moribund stream called the Sarsuti is really the relic of the once mighty river Sarasvati which due to physical causes, has shrunk and dwindled down; Ghaggar stands both for the ancient rivers Saraswatī and Drishadvatī of the *Rigveda*.

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confederacy. There was another battle that Sudās had to fight in which the three non-Aryan tribes, *Ajas*, *Śigrus*, and *Yakshus* had united under king Bheda; but these new assailants also met with the same fate and were defeated with great slaughter on Yamunā.

The *Bharatas* were residents in the time of the *Rigveda* of the region between the *Sarasvatī* and the *Yamunā*. The *Ṭṛitsus* were ruled by hereditary kings. One of them Divodāsa was a great conqueror who successfully fought against the *Purus*, *Yadus* and *Turvaśas* on the one hand and against Śambara, the *Dāsa* king, the *Paṇis* etc. Sudās, the son of Pijavana, was a descendant of Divodāsa.

The *Purus* were closely connected with the *Bharatas*, and they lived on either side of the *Sarasvatī*. The usually large number of kings of the *Purus* suggests the importance of the tribe. Purukutsa is mentioned as the contemporary of Sudās and a conqueror of *Dāsas*. Later there was amalgamation of the *Bharatas* and the *Purus* into the tribe known as the *Kurus*.

Closely allied with the *Bharatas* was the tribe of the *Śiriñjayas* who lived in their neighbourhood, probably in *Pañchāla*. The *Druhyus*, *Turvaśas* and *Anus* lived between the *Asikṇī* and *Parushṇī*. The names *Yadu* and *Turvaśa* normally occur together in the *Rigveda*. These two closely allied tribes lived in the southern Punjab and probably further south. The name of the *Turvaśas* disappeared from the late Vedic literature possibly because they became merged in the *Pañchāla* people.

The *Matsyas* lived in the region of modern Alwar, Bharatpur and Jaipur Districts. It was probably their home in Rigvedic age. The *Ajas*, *Śigrus* and *Yakshus* were probably the eastern people and were regarded non-Aryans. The *Pakthas*, *Bhalānases*, *Vishāṇins*, *Alinas*, and *Śivas* were the five frontier were the tribes.

Besides, there are other tribes which have not been directly mentioned as participants in the *Dāśarājña* (battle of the ten kings) or in any of the wars waged by Sudās. The *Chedis*, who dwelt probably between the Yamunā and the Vindhyas, had a very powerful king named Kaśu. The *Uśīnaras* were dwelling in the middle country along with the Vaśas and the *Kuru-Pañchālas*. The *Gandhāras*, one of the frontier peoples, lived to the extreme north-west of India. The *Pāravatas* were the people inhabiting the bank of Yamunā.

The *Kīkatas*, who were the non-Aryans, were living in Magadha. The *Paṇis* are mentioned as enemies of the Aryans. They were rich and selfish. The *Dāsas* lived in fortified towns (*ālyasīh puraḥ*) and were divided into clans (*viśaḥ*). They are said to be black-skinned (*krishṇatvach*), noseless or flat-nosed (*anās*), and evil tongued (*Mṛidhravach*) The *Kirātas*, *Kīkatas*, *Chaṇḍālas*, *Parṇākas*, *Simyus*, etc., were *Dāsa* tribes who mostly inhabited the Gangetic Valley and fought the *Bharatas* in their advance to the east and south-east.

As a result of the above survey, the position and extent of the tribal settlements referred to in the *Rigveda* may be determined roguhly as follows. Roughly speaking, the extreme north-west was occupied by the *Gāndhāris*, *Pakthas*, *Alinas*, *Bhalānases*, and *Vishāṅins*; some of whom probably contained non-Aryan elements. In Sind and the Punjab were settled the *Śivas*, *Parśus*, *Kekayas*, *Vrichīvants*, *Yadus*, *Anus*,

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Turvaśas and *Druhyus*. Further east towards the region of the Madhyadeśa were the settlements of the *Tṛitsus*, *Bharatas*, *Pūrus* and *Sriñjayas*, the eastern most part being in the occupation of *Kīkatas*. The *Matsyas* and *Chedis* were settled to the south of the Punjab in the region of Rajasthan and Madhya Pradesh.[1]

POLITICAL INSTITUTIONS

The *Rigveda*, being of religious character, gives only indirect references of the political institutions. It throws only partial light as the terms and expressions concerning political institutions are marked by obscurities and ambiguities. Because of the loss of the continuous traditions, the significance of these expressions is lost to the commentators, and scholars hold divergent views on them.

FORM OF GOVERNMENT

Monarchy

Monarchy was the normal type of government during the Rigvedic age. Most of the tribes mentioned in the *Rigveda* were under kingl's rule. The king under the style '*Rājan*' frequently occurs in the *Ṛigveda*. Ten kings are described as having fought in the historic battle against Sudās. In the *Dānastutis* (Praises of liberality), a very large number of *Rājas* are also mentioned. Further, the kingship had become hereditary in the Rigvedic period. There is reference to kingship being hereditary among the *Pūrus* for four generations, and among the *Śriñjayas* for ten generations. In hereditary family, the principle of primogeniture was usually in practice.

Tribal Democracy

RAMSHARAN SHARMA[2] has tried to prove that there was also tribal democracy during the Rigvedic age. *Gaṇa*, the technical word for the republic, is found at forty-six places in the *Ṛigveda*. There are several references to the *Gaṇas* of the *Devas* in the Vedic literature. They were nothing but the reflections of the *Gaṇa* organization existing in human society. The leader of *Gaṇa*, at one place known as *Gaṇasya rājā*, is generally called *Gaṇapati*. There is at least one reference in the *Rigveda* in which the leader of the *Gaṇa* is given the title of '*Rājan*'. The appellation '*Rājan*' to *Gaṇapati* may suggest that gradually the latter transformed himself into the position of king. Whether the *Gaṇapati* was selected by the members of the *Gaṇa* is nowhere indicated in the references. The economic basis of the *Rigvedic Gaṇas* was the rearing of cattle and cultivation of land. References indicate that *Gaṇa* also served as a sort of religious assembly.

Although there is no direct evidence of election of the *Gaṇapati*, it seems that there were no public officials, no taxes, no classes and no army apart from the *Gaṇa* army. There is also mention of drinking and singing in the *Gaṇa*.

1. *TVA*, pp. 241-250; *CHI*, pp 71-76.

2. *Aspects of Political Ideas and Institutions in Ancient India.*

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By the end of the Rigvedic period, we come across tribal republics of other varieties. A passage[1] refers to kings sitting together in an assembly has been rightly interpreted to imply that some tribes had no hereditary chief, but were governed directly by the tribal council. As in some oligarchic clans, the title of the *Rājā* was taken by all the greatmen of the tribe, who governed it through a folk-moot.[2]

KINGSHIP

Origin and Nature

There are divergent views about the origin and nature of kingship in the Rigvedic period. In the beginning, patriarchal atmosphere of the society seems to be responsible for the origin of kingship during the Rigvedic age. H. ZIMMER[3] and A.S. ALTEKAR[4] advocated that kingship arose out of the patriarchal society. The patriarch or *Kulapati* exercised wide powers over the members of his family in Vedic society. In the meanwhile, the Aryans were thus accustomed to obey a leader. Several *Kulas* or families formed a *Viś* presided over by a *Viśpati*, and several *Viśas* constituted a *Jana* ruled over by a *Janapati*. Like the *Kulapatis*, the *Viśapatis* and *Janapatis* also exercised considerable powers over the people under their leadership. In course of time, they became kings.

The need of a king might have been felt because of military and other necessities. Vedic literature contains some speculation about it. When gods were being continuously defeated in war by the *Asuras*, they pondered over the situation and concluded that the cause of their defeats was their having no king or competent leader. They then anointed Indra as their king and ultimately won the war. Indra was selected for the exalted position, because he was a very capable and powerful military leader. We are told that on another occasion, Varuṇa succeeded in establishing his claim to kingship by proving that he was superior to all other gods in strength and leadership. The origin of kingship in this way in divine society may be regarded as a reflection of practice in early Vedic society. This reveals that kingship in Vedic society originated as a result of the stress of war. Competent leadership was necessary to lead the Aryans successfully against the *Daśyus* or the non-Aryans, and this circumstance gave rise to kingship.

Based upon the equivalence of the gods and the demons in the *Aitareya Brāhmana* story to their human counterparts, K.P. JAYASWAL[5] suggested that the Indo-Aryans borrowed their institution of kingship from the Dravidians. In the pre-Aryan times, the Dravidians had kings and aborigines with whom the Aryans came in contact belonged to the Dravidian stock. Actually, the institution of kingship was already found among the Aryans when they came to India.

The Rigvedic kingship appears to be tribal in nature. This is proved by the fact that kings are described as the rulers over tribes like the *Kurus*, the *Pañchālas*, the *Yadus* and the *Turvaśas*. They have not been described as rulers over

1. *Rigveda*, X, 97. 6.
2. *Wonder That Was India*, p. 33.
3. *Altindisches Leben*, p. 162.
4. *State and Government in Ancient India*, p. 26.
5. *Hindu Polity*, p. 84.

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particular regions, and the boundaries of their kingdoms have not been described anywhere.

Generally kingship was hereditary during the Vedic period. There are also a few instances of the election of kings. The *Rigveda* in one place expressly describes the *Viśas* as electing their kings. This election perhaps was more formal than real, and the electors were more probably the members of the contending factions of the *Viśpatis* rather than the people in general. K. GELDNER[1] interpreted it not in the sense of the election of the king by the *Viś* but his acceptance by the subjects.

A.S. ALTEKAR[2] holds that except two solitary instances kingship during the early Vedic period was a human institution and the doctrine of divinity was unknown in the *Rigveda.* Only one king Purukutsa has been described as *ardhadeva* (semi-divine), and one solitary and late passage of *Atharvaveda* describes king Parīkshit as a god among men. These passages, however, do not prove the acceptance of the divinity of the king by the age. Purukutsa was called semi-divine probably because his widowed mother got him as a special fovour of the gods Indra and Varuṇa. Parikshit is called God among men simply to panegyrise him as there is no other instance.

U.N. GHOSHAL[1] rightly contradicts A.S. ALTEKAR by holding the Vedic dogma of creation of the four castes supplying the king to all later Brahmanical ideas of social origins involves the notion that the Kshatriya or the ruling order was invested with political authority by Divine ordination. Again one version of the origin of divine kingship of *Yajur-Saṁhitās* and the *Brāhmaṇas* implies that political authority was not only created, but endowed with His own attributes by the highest deity Prajāpati.

Status, Functions and Checks

The king occupied the position of high dignity and supremacy. He wore a gorgeous robe and lived in a splendid palace. He bore the epithet of '*Rajan*' which was applied to the great gods like Indra, Mitra, Varuṇa, Agni, Bṛihaspati, Soma and Yama as well as the multiple deities such as Ādityas, Aśvins and so forth. Still more significant is the repeated application of similies about kingship with reference to the gods. Agni is said to claim obedience like a king. Even the kings movements are held out as objects of comparison with those of the gods. Agni is said to march out like a mighty king with his retainers. Indra is said to have dwelt like a king among his wives. The huge lists of the gifts mentioned in the *Dānastutis* (Praises of liberality) testify to the king's extensive possession of slaves, horses and cattle along with chariots, ornaments and the like. Endowed with high dignity and prosperity, the position of the king was of great authority.

The main function of the king was to protect the people. It was the critical time because there were wars between the *Aryas* and the *Dāsas* as well as among the Aryans themselves. These petty tribes were trying to increase their influence.

1. *Der Rig-Veda*, p. 396.
2. *State and Government in Ancient India.*
3. *A History of Indian Political Ideas.*

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The king had to command the army in the war. The Aryans wanted to give up nomadic life for agriculture and cattle breeding which require the king for protection.

It was also the time of social upheaveal because of the contact between the Aryas and the *Dāsas* The preservation of racial purity and culture was the duty of the king besides security. He was considered the upholder of the sacred law and the cosmic law. The Aryans believe that stars, earth and planets follow the fixed law which is beneficial to the humanity. If the sacrifices are performed, the cosmic law may prevail. The performance of the sacrifices was the function of the priests, but it was the duty of the king to see that Vedic sacrifices were properly performed. It was also the duty of the king to increase the wealth so that his tribe may be comfortable and happy.

Though invested with important attributes and credited with the exercise of high level and military functions, the early Vedic kingship was far from being absolute. He was prevented from establishing autocracy by 'the pre-eminence of the ruling class', and the existence of the people as a powerful and dominant factor. The tendency to irresponsibility was also checked by priests who exercised great influence. Divine law and customs operated as checks on his authority. Restraints of constitutional character were probably imposed by the existence of *Sabhā* and *Samiti*. The king thus seems to have become a constitutional monarch only exercising authority in a limited way.

ADMINISTRATION

The *Rigveda* refers to the spies of Varuṇa and other gods. These are probably reflections of king's agents for exercise of criminal justice. Two titles occurring in the *Rigveda* '*Madhyamaśī* and *Jīvagṛibb*' were taken by some scholars to refer to king's judicial and police officers respectively, but this interpretation has not found general acceptance.

The *Rigveda* also shows the beginnings of the financial administration. The technical term '*bali*' is used in some *Rigvedic* passages to mean an offering to a god, but in other passages, it definitely refers to contributions from the subjects. In one passage, a poet refers to Indra to make subjects the bringers of *bali* to a newly consecrated king. The *bali* was at first probably voluntary in character but afterwards, it became a compulsory payment. Another source of the king's revenue consisted of tribute also called *bali* exacted from conquered enemies. Thus the revenue of the king was derived in part from contributions from subjects and partly from tribute of conquered communities. For the realization of the revenues, the king must have employed appropriate agents.

With regard to the military administration, there are references to *Senāni* (Leader of army) and *Purapati* (Lord of fort). The precise significance of the term '*Grāmanī*' is a subject of dispute. According to A. WEBER[1] it was originally applied to a troop leader and afterwards, it signified the chief of the village. It

1. *Indische Studien*, X.

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seems probable that the '*Grāmanī*' was at first a troop leader but afterwards became the village headman when the tribes had settled down in the land. The common soldier fought on foot without arms while the kings and nobles fought from chariots and were equipped with mail armour.

The germs of an aristocracy of service may have arisen in Rigvedic period. The terms *Ibhas* and *Ibbyas* apply to the class of king's retainers. The terms *Upastis* and *Stis* apply to the group of king's clients or dependants. *Kshatra* is applied metaphorically to the god Agni in the sense of distributor of good things to his worshippers. This would suggest that even so early a court official called *Kshatra* was charged with the duty of distributing the king and his retinue. The Brāhmaṇa generally possessed the office of the *Purohita*. Among the famous *Purohitas* mentioned in the *Rigveda* are Viśvāmitra (*Purohita* of Sudās) and Devāpi (of Śāntanu). He acted as *hotri* at sacrifice. As regards his public functions, he acted in the capacity of the protector of the realm. The priest prayed while the king was engaged in the battle-field.

Popular Assemblies

The terms showing popular assemblies such as *Vidhata*, *Sabhā* and *Samiti* occur in Vedic literature. Vagueness surrounds the nature, composition and functions of these institutions, because the literary data is not accurate and capable of different interpretations. Scholars, therefore, come to divergent conclusions. About relative importance, not much is known. It is certain that they might possess the common attributes of origin but by no means they are identical.

Vidatha : Nature and Composition

In the Rigvedic period, *Vidatha* seems to be a more popular assembly than *Sabhā* and *Samiti*. R. ROTH concludes that *Vidatha* was an assembly meant for secular, religious and military purposes. Following him, K.P. JAYASWAL[1] thinks that the *Vidatha* was probably "the parent folk-assembly from which the *Sabhā*, *Samiti* and *Senā* differentiated.

In one characteristic, *Vidatha* differs from the *Sabhā* and the *Samiti*, is that it was attended by women who participated in deliberations. The *Rigveda* informs that Yashā went to the *Vidatha*. It appears that the female member was not a mute participant in the affairs of the assembly. Thus Sūrya is instructed to speak to the assembled people in the *Vidatha*. A desire is expressed in marriage ceremony that the bride may not only figure as a housewife but having control, she may speak to the *Vidatha*. Women enjoyed an equal voice with man in the deliberative functions of the *Vidatha*.

Functions

The *Vidatha* as the earliest folk-assembly of the Indo-Aryans attended both by men and women performed different functions. It probably made laws and ordinances for the regulation of the affairs of the tribe. It is possible that it conducted

1. *Hindu Polity*, pp. 12-20.

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military functions under some war-chief. It functioned as a religious body by performing sacrifices. It was also the scene of singing, drinking and sports.[1]

Sabhā : Nature and Composition

Scholars hold different views regarding the nature and composition of *Sabhā*. A. HILLEBRANDT[2] is of view that *Sabhā* and *Samiti* cannot be distinguished and they are one. This view is wrong as *Sabhā* and *Samiti* are clearly mentioned in the *Artharvaveda* as the two daughters of Prajāpati. H. ZIMMER[3] thinks that it is the meeting place of the village council presided over by *Grāmini*. From the evidence of the *Śatapatha Brāhmaṇa*, *Sabhā* is known to be the evidence of the highest dignitaries and cannot be equated with a village council. There is no proof that *Grāmiṇi* presided over the *Sabhā*. M. BLOOMFIELD[4] holds that *Sabhā* was used for a domestic purpose, and not as an assembly at all. A LUDWIG'S[5] theory is that *Sabhā* was an assembly not of all the people but only of the Brāhmaṇas and the *Meghavāns* or rich patrons. A. MACDONELL and A.B. KEITH[6], authors of the Vedic Index, maintain that it is used as a hall in addition to gambling for the transaction of public business of various kinds. Women do not seem to have attended the *Sabhā*. K.P. JAYASWAL[7] is of the opinion that it is the standing and stationary body of selected men under the authority of the *Samiti*. N.C. BANDYOPADHYAYA[8] thinks that early *Sabhā* was of the type of the association of the kinsfolk but later on the *Sabhā* became not only an association of kinsfolk, but of men bound together by ties of blood or local contiguity. A.S. ALTEKAR[9] believes that *Sabhā* was the village assembly meeting for social and political purposes.

Functions : Social

Sabhā used to perform several types of functions as believed by scholars. It was a sort of social club meant for social intercourse. People used to entertain themselves by gambling, debates and verbal contests.

Political

K.P. JAYASWAL, N.C. BANDYOPADHYAYA, A.S. ALTEKAR and U.N. GHOSHAL[10] believed that *Sabhā* also became the political assembly. It is known from one passage that Indra's devotees rich in horses, wealth and chariots go to *Sabhā*. Another passage refers to the princes coming together to make the *Sabhā* complete.

1. Ramsharan Sharma, *Aspects of Political Ideas and Institutions in Ancient India*, pp. 63f.
2. *Vedische Mythologie*, pp, 2, 123-25; *Vedic Index*, II. p. 427, note (15).
3. *Altindisches Leben* p. 174, See also Vedic Index, II, p. 427.
4. *JAOS*, 19, p. 13; *Vedic Index*, II, p. 42.
5. *Translation of the Rigveda*, pp. 3, 253-256; *Vedic Index*, II, p. 426.
6. *Vedic Index*.
7. *Hindu Polity*, pp. 17-20.
8. *Development of Hindu Polity*, Part I, pp. 110 ff.
9. *State and Government in Ancient India*, pp. 97-98.
10. *A History of Hindu Political Theories*.

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These passages suggest that *Sabhā* by this time had developed into political assembly in which rich people and nobles had predominant voice. On the other hand, B.A. SALETORE[1] holds that passages which refer to the wealthy persons going to *Sabhā* need not necessarily be taken as a proof of political work of the *Sabha*.

Deliberative

According to U.N. GHOSHAL, *Sabhā* enjoyed the right of deliberation relating, no doubt, to public affairs. It was a place of free and frank discussion. The success of speech in *Sabhā* carries prestiege and dignity. The prayers were offered that he may succeed in debate and that his speech may be liked by the members of the *Sabhā*. The possession of such a right necessarily implies that it had a voice in the administration. B.A. SALETORE holds different view. According to him, the translators did not agree to the exact meaning of the passages so that we have no definite and conclusive proof to establish the deliberative functions of the *Sabhā*.

Judicial

A. LUDWIG, H. ZIMMER, N.C. BANDYOPADHYAYA and K.P. JAYASWAL are of the opinion that *Sabhā* acted as the National Judicature. The *Rigveda* describes the person who has come back successful from the *Sabhā*, and the other person free from the blame. The *Yajurveda* also mentions the people repenting the sins committed in the *Sabhā*. It is called trouble and vehemence for those who are troubling the society. The objection against *Sabhā* acting as Judicature was raised by P.V. KANE.

The *Sabhā* is called "*Narishta*" which according to K.P. JAYASWAL, meant a 'resolution of many' that cannot be broken. It was binding on all. It makes it a sovereign body. It is very difficult to believe that the standing body should be regarded as sovereign for there is no such instance. Secondly, the interpretation of '*Narishta*' has been challenged both by foreign and Indian scholars. According to M. BLOOMFIELD and W.D. WHITNEY, it should mean mirth and sport respectively. U.N. GHOSHAL quotes many passages to show that *Sabhā's* connotation is similar to mirth and sport.

Samiti

H. ZIMMER. K.P. JAYASWAL and U.N. GHOSHAL consider *Samiti* to be the national assembly of the whole people. According to A.S. ALTEKAR, the village had a popular assembly called *Sabhā*, and the capital had the Central assembly for the whole state which was called a *Samiti*.

Functions : Election of the King

According to H. ZIMMER, K.P. JAYASWAL and U.N. GHOSHAL, the most important function of the *Samiti* was the election of the King. It could also re-elect

3. *Ancient Indian Political thought and Institutions*, pp. 90-96.

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the King. The evidence for elective monarchy is not so strong. Often the kingship in ancient India is hereditary. K. GELDNER thinks that it should be mean only the acceptance of the king by the people.

Political and Constitutional

Scholars believe that *Samiti* performed political and constitutional functions. K.P. JAYASWAL considers *Samiti* as a sovereign body from the constitutional point of view. In the *Rigveda*, there are prayers for common *Samiti*, common man and a common mind which indicates matters of State discussed in *Samiti*. It was the duty of the king to attend *Samiti*. It is difficult to follow *Samiti* as a sovereign body from the constitution point of view. These are only the ordinary hymns for some sort of harmony among people, and they do not prove it as a sovereign body. The sovereign functions of *Samiti* are not clear. King's attendance of *Samiti* is merely an inference.

A.S. ALTEKAR thinks that the deliberations of the *Samiti* harminious, minds well disposed towards one another and conclusions unanimous refer to the deliberative and administrative activity of the republican state. But according to B.A. SALETORE, it is not possible to agree with the view of A.S. ALTEKAR about the republican nature of the State because the hymns give different interpretation. A.S. ALTEKAR also holds the view that *Samiti* exercised control over the military and executive affairs of the central Government. How its powers were exercised and how its powers were co-ordinated with that of the king, is not known. It is not based on sound evidence so that it cannot be accepted.

U.N. GHOSHAL holds the view that *Samiti* was an important asset to the king on the basis of two passages in the *Atharvaveda*. In one it is mentioned at the end of a long list of imprecations against a Kshatriya's injuring a Brāhmaṇa, that the *Samiti* does not suit him, and in the other of which there is a prayer for a consecrated king with a list of blessings on him at the end of which it is stated that the *Samiti* may suit him. These prove that *Samiti's* role was significant in the Vedic age. Other scholars such as A.B. KEITH, A. MACDONELL and P.V. KANE took different interpretations of these passages. They interpreted them as merely the proof of concord between king and *Samiti*. They do not prove any constitutional and political importance of *Samiti*.

U.N. GHOSHAL further holds that *Samiti* has the right of control over the distribution of public funds or land on the basis of the passage of the *Śatapatha Brāhmaṇa*. According to this view, the popular assembly composed of *Viśah* was the sovereign body. *Viśah* was superior to the *Kshatra* who was the king. This theory is untenable on the strength of the *Śatapatha Brahmaṇa* itself. Kshatriya is represented as superior to the *Viś* and as being served by them.

It may be concluded so far as the *Sabhā* and *Samiti* are concerned with the judicious statement of P.V. KANE[1] thus, "It is impossible to say how the *Sabha* or *Samiti* was constituted in the Vedic period. It was an assembly of people to which

1. *History of Dharmaśāstra*, III, p. 92.

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the king, learned men and others went". The functions performed by these bodies are mostly social".

SOCIAL CONDITIONS

Rigvedic age is remarkable, because the Aryans came into contact with the original inhabitants of India. It was but natural that they must have mutually influenced. They might have developed new customs to meet the needs of the time. The only definite source of information for the social conditions of the Aryans of this period is the *Rigveda* which actually throws useful light.

SOCIAL ORGANIZATION

In the Rigvedic age, the society was divided into two main antagonistic racial groups based on *varṇa* which means colour. The Aryas were of fair colour while the *Dāsas* were black. Besides the difference of the colour of their skin, they differed also in worship, speech and bodily appearance. The Aryas were sacrificers and fire-worshippers; the *Daśyus* were phallus-worshippers. The Aryans spoke Sanskrit while the *Dāsas* are described as of indistinct speech. (*Mṛdhravāchah*) and they had flat noses (*anāsas*). Though the words Brāhmaṇas and the Kshatriyas occur frequently in the *Rigveda*, the word *varṇa* is not used in connection with them.

The extent to which caste had been developed in the age of *Rigveda Saṁhitā* has formed a subject of keen controversy among scholars. The uncertainty regarding the exact tnterpretation of the basic words and phrases in the *Rigveda* and the relative chronology of the various relevant passages scattered throughout that *Veda* make it difficult to arrive at any conclusion that is likely to meet with general acceptance. N.K. DUTT,[1] G.S. GHURYE[2] and some others are of the view that the caste system was in existence during the Rigvedic Age, and their arguments are as follows :

1. Some hymns of the *Ṛigveda* give glimpses of the caste system during the Rigvedic period. There is mention of Brāhmaṇa, Rājanya, Vaiśya and Śūdra in the *Purushasūkta* of the *Rigveda*.[3] Besides this, in some other hymns, these names are found. Thus in the *Rigveda* (VIII, 35, 16-18), the three *varṇas*, the *Brahma*, *Kshatram* and *Viśah* are mentioned; while in the *Rigveda* (1. 113,16), the four *varṇas* are referred to thus.

2. These groups at this time had become hereditary. The words *Brahmaputra*, *Brahmadevānām*,[4] *Viprānām* and *Brahmajāyā*[5] reveal the heredity of the Brāhmaṇas. Hereditary Brāhmaṇas were needed for the systematic performance of sacrifices and the rituals. The genealogies of the kings prove that the Kshatriyas were hereditary. There was separate existence of the *Dāsas* in the society. Thus in some form, caste system was found.

1. *Origin and Growth of Caste in India*, Vol. I, p. 39.
2. *Caste and Race in India*, p. 42.
3. *Rigveda* X, 90.
4. *Ibid.*, IX, 96. 6.
5. *Ibid.*, X, 109, 2, 3, 6 and 7.

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3. The existence of smilar classes among the Iranians namely priests, warriors, agrlculturists and artisans, makes it very probable that by the time of the *Ṛigveda*, the four classes had developed into hereditary caste groups.

4. During the Rigvedic period, the Aryans settled in the Punjab, and they were advancing towards the east. They also came into contact with the *Dāsas*. As a result, new social and religious problems arose, and they established these four *varṇas* on the basis of the principle of division of labour.

On the contrary, H. ZIMMER,[1] COLEBROKE,[2] F. MAX MULLER[3] and P.V. KANE[4] hold that there was no cast system during the Rigvedic age, and their arguments are as follows.

1. During the Rigvedic period, these castes were not founded separately on the basis of birth, but a person used to choose it at his own will. This is clear from several instances. A poet exclaims" I am a reciter of hymns, my father is a physician and my mother grinds (corn) with stones. We desire to obtain wealth in various actions."[5] The poet wistfully asks Indra, "O, Indra, fond of *Soma*, would you make me the protector of people or would you make me a king. Would you make me a sage that has drunk of *Soma*, would you impart to me endless wealth".[6] This shows that the same man could be a *Rishi* or a noble or a king. The *Rigveda* speaks of Devāpi as the *Purohita* of his younger brother Śāntanu who became a king. This shows that out of two brothers one became a king and the other a *Purohita*. So kings and *Purohitas* (Priests) did not depend on birth.

2. There were no restrictions in the Rigvedic society in the matter of diet and drink among the people of different *varṇas*. There were no difinite restrictions on inter-marriages between the different classes of the Aryan race. Mixed marriages were known—Yayāti a Kshatriya king and Devayānī, the daughter of a Brāhmaṇa ; of Dushyanta, a Kshatriya king and Śakuntalā, supposed to be the daughter of a Brāhmaṇa sage. *Varṇas* seem to be the open classes. They were not water-tight compartments, the membership of which was determined by virtue of heredity only. They were more based on individual traits and less upon descent.

3. As far as the evidence of the caste system from the *Purushasūkta* is concerned, it was a later interpolation according to some scholars. Eevn in the *Purushasukta* where the words Brāhmaṇa, Rājanya, Vaiśya and Śūdra occur, the word *varṇa* is not used. Though the words Brāhmaṇa and Kshatriya are found frequently in the *Rigveda*, the word *varṇa* is not mentioned in connection with them.

4. The word 'Brāhmaṇa' occurs several times in the *Rigveda*, but it was not used in the sense of the caste. '*Brahmaputra*' was not used in the sense of Brāhmaṇa based on birth, but it must mean a *Ritvij* whose duty it was to recite *śāstras*. In the *Rigveda* IX. 96.6 (*Brahmā devānām*), the word 'Brahmā' does not certainly mean 'brāhmaṇa' by birth, nor does '*Viprāṇām*' mean 'Brāhmaṇas by birth'. The word '*brahmajāyā*' in *Rigveda* X.109, 2,3,6 and 7 does not mean the wife of a Brāhmaṇa by birth but rather 'wife of Bṛihaspati'. Thus the Brāhmaṇas in the Rigvedic age seem to be a class by themselves, but they had not become a caste by birth.

1. *Altindisches Leben.*
2. *Miscellaneous Essays*, p. 309.
3. *Ancient Sanskrit Literature*, p. 570.
4. *History of Dharmaśāstra*, pp. 25-33.
5. *Rigveda*, IX, 112. 3.
6. *Ibid.*, III, 44. 5.

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5. The existence of the four classes in Iran as known from the Avestan literature certainly argues for the existence of somewhat similar classes in Rigvedic society but much stronger positive evidence is necessary to establish that these classes were hereditary.

In the *Purushasūkta* of the *Rigveda* (X.90.12), the Brāhmaṇa, Kshatriya, Vaiśya and Śūdra are said to have sprung from the face, arms, thighs and feet of the supreme *Purusha*. In the next verse, the Sun and the Moon are said to have been born from the eye and mind of the *Purusha*. The *Purushasūkta* has been interpreted as having an allegorical significance. First the whole humanity is said to be born from one Supreme Person, and afterwards the whole Universe. Even in the *Bṛihadāraṇyaka Upanishad*, the *Mahābhārata* and the *Manusmṛiti*, the origin of the caste system has been repeated in the similar manner.

These main groups of Brāhmaṇas, Kshatriyas, Vaiśyas and Śūdras based on professions were classes but not castes. During this age, the Brāhmaṇas were highly venerated. They recited the hymns drank *Soma* and performed sacrifices and rituals. Like the Brāhmaṇas, the Kshatriyas were more or less a class. The word '*rājanya*' occurs only in the *Purushasūkta* but at other places of the *Rigveda* Kshatriya is used. In some verses, Kshatriya means 'a king or a nobleman'.[1] At this time, the kingdom was tribal in nature. The names of such kingdoms Yadu, Turvaśu, Druhyu, Anu, Pūru, Bhṛigu, and Tṛitsu are found mentioned.

Though the word 'Vaiśya' occurs in the *Rigveda* only in the *Pūrushasukta*, the word '*Viś*' is very frequently employed in it. In the *Rigveda*, '*Mānushīr-viśah*,'[2] *Dāsīrviśaḥ*,[3] and *Daivīnām viśām*[4] are found mentioned. In one hymn, '*Viś*' means all the Aryan people.[5] In the *Rigveda*, *Agni* has the appellation '*pāñchajanyaḥ purohilaḥ*' (the *purohita* of the five peoples). The very fact that '*Viś*' is qualified also as *pāñchajanya* shows that there was hardly any distinction between *Jana* and *Viś*. *Viś* cannot in almost all hymns of the *Rigveda* means 'Vaiśya' but means the 'people' who followed cultivation and animal breeding.

The *Dāsas* and the *Daśyus* of the *Rigveda* were the same persons. They are described as '*avrata*[6] (not obeying the ordinances of the gods), '*akratu*'[7] (who perform no sacrifices), *mṛidhravāchaḥ*[7] (whose speech is indistinct) and *a nāsah*[8] (snub-nosed). There were sometimes styled *Asuras*. There was enemity between the Aryas and the *Dāsas*. In order to defeat the *Dāsas*, prayers were offered to Indra and other gods by the Aryans. The *Dāsas* or *Daśyus* conquered by the Aryans were gradually transformed into the Sūdras. From being enemies, they were brought into friendly relations and given a very subordinate position. Traces are visible even in the *Rigveda* that friendly relations had begun to be established between certain *dāsas* and the priests. The singer took a hundred (cows or other gifts) from the *dāsa* Balbūtha and from Taruksha.[10]

1. *Rigveda*, IV, 42. 1..
2. *Ibid.*, III. 5 3. III. 6, 3, 11. 5.
3. *Ibid.*, IV. 28.4 VI. 25. 2.
4. *Ibid.*, III. 34. 2.
5. *Ibid*, VIII. 63. 7.
6. *Ibid*, I. 51, 8.I. 175.3, VI. 14.3.
7. *Ibid*, VIII. 6.3.
8. *Ibid*, VII. 6.3 and V. 29.10.
9. *Ibid.*, V. 29.10.
10. *Ibid*, VIII. 46.32.

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Family Life

Besides class or caste, the foundation of the social organization during the Rigvedic age was patriarchal family. From some references found in the *Ṛigveda*, it is clear that there was absolute control of the father over his children. The gift or sale of a son was not regarded as beyond the power of the father. The sale of a son is illustrated by the story of Śunahśepa whom king Hariśchandra bought from his father Ajigartha for the completion of a certain sacrifice.[1] There is also a story of Rijrāśva who was blinded by his father because he allowed hundred sheep to be devoured by a wolf.[2] The insolvent gambler was disowned by his parents and brothers is front of his creditor.[3]

The strict control of the father does not mean that there was lack of co-operation among the members of the family. The wife has been described as the ornament of the home. She was dutiful to her husband's parents, affectionate to her husband's brothers and sisters and devotedly attached to her husband.[4] This proves that all these members lived together, and there was a joint family system.

A notable feature of the family life was that great emphasis was laid on hospitability. The frequent epithet of Agni, viz *Athithi*, indicates that great affection and respect was generally shown to a guest. It was elevated to the rank of a religious duty as it was one of the five great daily sacrifices (*Pañchamahāyajñas*).

Marriage

The basis of family life is marriage which had already been well organized and established in the society as known from the *Ṛigveda*. Different forms of marriage are known to have been prevalent. The usual form of marriage was based on mutual consent. That other forms of marriage known as *Kshātra* (by conquest) or *rākshasa* (by abduction) occasionally prevailed is clear from the fact when Vimada married a bride won in war. The *Āsura* form of marriage in which the bride's purchase took place, was also known, but not held in esteem; the son-in-law in such cases was described as *Vijāmātā* or a disreputable son-in-law. *Gāndharva* or love marriages were well-known. In the *Daiva* marriage, daughter was offered to an officiating priest for his vast knowledge and spiritual culture by the sacrificer.

Child marriage was unknown. Girls were married at a fairly advanced age. A perusal of the marriage hymn[5] shows that bride was fully mature and quite grown up at the time of marriage; she is expressly described as blooming with youth and pining for a husband. A hope is expressed that the bride would forthwith takeover the reins of the household from her parents-in-laws.

Monogamy was the usual rule in the society, but polygamy was practised by the rich and the ruling classes. Polyandry was unknown. There is no evidence of widow remarriage, but there was the practice of levirate (*Niyoga*), according to which, a childless widow could live with her dead husband's brother in order to produce children.

1. *Ṛigveda*, I. 24. 12-15 and V.2.7.
2. *Ibid.*, I. 116.16.
3. *Ibid.*, X. 34.4.
4. *Ibid.*
5. *Ṛigveda*, X. 85.

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POSITION OF WOMAN

The position of woman was fairly high. *Upanayana* or the ceremonial initiation in Vedic studies was as common in the case of girls as it was in the case of boys. *Upanayana* was followed by a period of education which was regarded as very essential to secure a beautiful match. Women studied the Vedic literature like men, and some of them Lopāmudrā, Ghoshā, Viśvavārā and Sikatā-Nivāvarī were the authors of the *Rigveda*. They had also the right to perform the Vedic rituals by themselves. A Rigvedic hymn[1] describes how a maiden could take a *soma* twig and offer it by herself as a sacrifice to Indra. Vedic sacrifices were performed jointly by the husband and the wife, and the singing of the Vedic hymns during the sacrificial session was long considered as the most appropriate function of the wife. Women had control over their '*pāriṇāyya*' (gifts and property, etc) received at the time of marriage.

There was no seclusion of women, and they had considerable freedom. They could move freely in the society. The existence of *Gāndharva* (love) marriages attests to the freedom of movement granted to grown-up maidens. The position of wife was honourable in society. Like men, women could be the members of the popular assemblies like *Vidatha*, and they participated in the debates. Women also followed a number of professions like those of the dyers, embroiderers and basket makers.

EDUCATION

The education of the boy or girl started with the *Upanayana* or the ceremonial initiation in Vedic studies. It was similar to the Indo-Iranian ceremony of *Navjot*. The professional training was imparted in the family, but for Vedic study, the boy was sent generally to the special teachers. The teacher recited the *Veda* section by section and the pupils repeated his words after him. The entire instruction was given orally. Debates are also referred to. The word *Brahmachārin* in the technical sense of a religious student is also found. The sharpening and stimulation of intellect as well as the development of character in the *Brahmachārin* was also aimed at.

It is a debatable point whether the art of writing was known at all in this age. Most of the Indologists are of opinion that the Rigvedic Aryans did not know the system of writing, and in the *Ṛigveda* there is nothing to prove it. On the contrary, G.H. Ojha, D.R. Bhandarkar and R.B. Pandey gave some negative and indirect evidences to prove the system of writing in the Vedic Age. The *Ṛigveda* refers to high figures involving the knowledge of written arithmetic. King Sāvarṇi gave one thousand cows in alms, on whose ears figure eight was imprinted.[2]

AMUSEMENTS AND ENTERTAINMENTS

Of the amusements of the people, the most popular was the chariot race. They were exceedingly fond of horse riding and horse racing. Hunting was also their pastime. The hunter used bow, arrow, snares and traps. There are references to the capture of lion in snares. They were also fond of dice playing.

1. *Ṛigveda*, VIII. 91.1.

2. R.B. Pandey, *Indian Palaeography*.

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Both men and women danced in Rigvedic times, but there is no evidence to show that there was any mixed dancing. Singing was highly esteemed. The name of drum was *dundubhi* which was used both in war and peace. There was also flute known as *vīṇā*.

The word *samana* frequently occurs in the *Rigveda*. The Vedic *Samanas* appear to have been popular institutions as they attracted poets, artists, archers and skillful riders of horses who competed with one another. They afforded recreation, relaxation and amusements

FOOD AND DRINK

Milk formed a considerable part of the ordinary diet. *Ghee* and butter were also used. Grain was either parched or ground into floor and mixed with milk or butter and made into cakes. Vegetables and fruits formed a considerable portion of the dietary. The Rigvedic Aryans also occasionally ate meat. On special occasions such as sacrifice and the visit of an honoured guest even beef was eaten. But the epithet *aghnyā* 'not to be killed' used for cow in the *Rigveda* shows kindness towards this animal. There were two intoxicating drinks. The first was *Soma* used as a sacrificial drink. The other is *Surā* which seems to have been distilled from grain.

DRESS AND ORNAMENTS

The dress ((*vasana* or *vastra*) consisted of two garments namelv the *vāsas* (lower garment) and the *adhivāsa* (an over-garment or an upper garment). The *atka* (a garment) as described was woven and well-fitted. Woolen clothing was in vogue. A sort of mantle or cloak (*drāpi*) is often mentioned. A kind of embroidered garment (*peśas*) was used by female dancers.[1] A special garment called *vādhūya* was worn by the bride at the marriage ceremony.

Both man and woman wore ornaments. The *Karṇaśobhana*, an ornament of gold for ear, was used by men.[2] The *Kurīra*[3] was some kind of head-ornament worn by females, specially brides. *Nyochani*[4] was another type of bride's ornament. *Khādī*[5] was a kind of ring, worn as an armlet or an anklet. *Nīshka* was a gold necklace. *Maṇi*[6] was some kind of jewel worn round the neck. *Rukma*[7] was an ornament worn on the breast. Garlands were often worn by men.[8] The hair were kept combed and oiled. The use of the word *opaśa* indicates that plaits were worn by women in dressing the hair. Men also wore their hair plaited or braided.[9]

KNOWLEDGE OF MEDICINE

Respect was shown towards the physician for his skill. Prayers for long life were frequent. Miraculous cures are ascribed to the twin gods, the Aśvins, who

1. *Ṛigveda*, 1.92. 4.5; II. 3.6.
2. *Ṛigveda*, VIII. 78.3.
3. *Ibid.*, X. 85.8.
4. *Ibid.*, X. 85.6.
5. *Ibid.*, I. 166.9; VII. 56.13.
6. *Ibid.*, I. 122.14.
7. *Ibid.*, II. 34.2.8.
8. *Ibid.*, IV, 38.6; V. 53.4.
9. *Ibid.*, X. 114.3; VII. 33.1.

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are the great healers of diseases and experts in the surgical art. These divine physicians restored eye-sight and cured the blind, sick and maimed.[1] Among diseases, *Yakshma* is frequently mentioned.[2] It denoted illness in general, and probably consumption in particular. The entire hymn X. 97 is addressed to the *Oshadhīs*, the plants with special reference to their curative powers. Thus herbs and plants figured prominently in the materia medica of this period.

OTHER SOCIAL PRACTICES

A few hymns of the *Ṛigveda* throw some light on the funeral customs of the Aryans. Though cremation was their distinguishing method of disposing the dead, burial was also practised. Fathers burnt with fire and those not burnt with fire (i.e. buried) are referred to.[3]

The system of *Satī* existed among the Aryans in the Indo-European period. By the time they entered India, it had, however, gone out of vogue, but it might have survived in the shape of formal custom. Though it is not referred to in the formal hymns of the *Ṛigveda*, the *Atharvaveda*,[4] however, shows it was still customary for the widow to lie by the side of her husband's corpse on the funeral pyre. She was asked to come down and a prayer was offered that she should lead a prosperous life enjoying the bliss of children and wealth. It is, therefore, clear that the Vedic age expected the widow to remarry rather than to immolate herself.

ECONOMIC CONDITIONS

The notable feature of the economic conditions of the Rigvedic age seems to be the introduction of iron of which the Aryans had full knowledge even before their advent in India. At this time, these people were not settled. They were partly agriculturists and partly nomadic. Agriculture and cattle rearing were their two main professions. Besides, to meet the new needs of the society, the principle of division of labour was devised. The trade was both inland, and with the outside countries. Generally cow was used as a medium of exchange for the commodities.

USE OF IRON

From several references to '*ayas*' in the *Ṛigveda*, it appears that it was very hard, malleable to be beaten into vessels and capable of being rendered sharp. Scholars like MONIER WILLIAMS,[5] GELDNER,[6] M.N. BANERJEE,[7] P. NEOGY,[8] LALLANJI GOPAL,[9] and N.R. BANERJEE[10] understood '*ayas*' in the sense of iron. The process of smelting iron described in the *Rigveda* would imply the use of "medicinal plants"

1. *Ibid.*, VIII. 18.8; 22.10; I. 116.16; X 39.3.
2. *Ibid.*, I. 122.9; X. 85.31; 97.11, 12; 137.4; 163.1-6.
3. *Ibid.*, X. 15.14; XVIII, 2.34.
4. *Atharvaveda*, XVIII.2.1.
5. *A Sanskrit English Dictionary*, 1960, p. 85.
6. *Der Ṛigveda*, I, p. 488.
7. *IHR*, V, pp. 432ff.
8. *Iron in ancient India.*
9. *Uttar Bharati*, IX, No. 3, pp. 71-86.
10. *The Iron Age in India*, pp. 158ff.

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as fuel "shining stones" as ore and "fans of geese feather" as bellows.[1] The smith, who produced objects of *ayas*, was called *Karmāra*. The articles of iron were used as vessels, tools and weapons. Their names mentioned in the *Ṛigveda* are as follows *asi, Svadhiti, varman, ayūdha, ishu, bāṇa, paraśu, dhanus, śalva. śriṅga, kulmala, nishaṁga, bhṛishṭi, chasu, vāśī, kṛiti, yurṇi, jurṇi, vṛika, pavi, khaḍga, titona, dharma,* etc.[2] The potentialities of this new metal led to the quickening and expansion of agriculture, the utilisaiion of forest wealth and the exploitation of mineral resources. It gradually resulted in the surplus of wealth and prosperity. *Paraśu, Pavi, Svadhiti* and *Kshura* were used for cutting down of woods for habitation. Looking at the military needs, because of their war with the aboriginals, the Aryans must have manufactured a large number of tools and weapons. In the wake of popularity of iron, use of copper gradually became restricted.

AGRICULTURE

The principal occupation of the people was agriculture. Every respectable householder was eager to possess a number of plots of fertile land for cultivating corn. There seems to have been improvement in the process of agriculture because iron might have penetrated into the sphere of agriculture in the form of various tools. There is mention of the use of bulls to draw the plough (*sīra*), of the sowing of seeds in the furrows (*sītā*) thus made, of the cutting of the corn with the sickle (*dātra*), the laying of it in bundles on the threshing floor, and the threshing and final sifting either by a sieve (*titau*) or a winnowing fan (*śurpa*)[3]. The mention of artificial water ways such as *Kulyā*[4] and *Khanitrimā apah*[5] shows that the use of irrigation was known. Wells artificially made are contrasted with springs. The water was raised by a wheel to which a strap with a pail attached to it was fastened. The wells could be used for irrigation purposes when the water was led off into broad channels. Of the grains thus grown, the *Ṛigveda* frequently mentions *yava* which in later times meant barley.

Cattle Rearing

Cattle rearing was another important occupation. The Rigvedic Aryans were primarily a pastoral people, and naturally domestic animals were their most valued possession. These domestic animals were bullocks, cows, horses, goats, camels, etc. These constituted the chief form of wealth. Their wealth and prosperity depended upon the possession of a large number of these animals. Even the *dakshiṇā* given to the priest on the occasion of a sacrifice usually consisted of cows. Bullocks were used for ploughing and also for drawing carts. Horses were meant for fighting purpose. Cows give milk for drinking, These animals were also used for communication purpose.

1. *Ibid.*, p. 159.
2. *The Iron Age in India*, pp. 162-169.
3. *Ṛigveda*, 10,28.
4. *Ibid.*, III, 45.3.
5. Ibid., VII, 49.2.

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OTHER OCCUPATION AND INDUSTRIES

The Rigvedic Aryans in course of time accepted the principle of division of labour to meet the needs of the society. There were four classes according to the nature of the professions. The Brāhmaṇas dedicated themselves to the highly specialised profession of officiating at the sacrifices and preserving the sacred hymnology of the Aryans by conducting Vedic classes. The Kshatriyas had taken to the fighting profession. The Vaiśyas followed agriculture, cattle rearing and the various arts, crafts and industries. The Śūdra class was engaged in service of all kinds.

Besides, the number of other occupations gradually increased owing to the complexity of the civilization. There were persons who took up the profession of weaving, and they were called weavers. The weaving was also done by women. There were carpenters (*takshan*)[1] who made chariots (*rathas*), wagons (*anas*), boats (*nau*) and wooden vessels. The chariots were of special use by the Aryans in battle-fields. Smiths (*Karmāra*)[2] made agricultural implements and weapons for war. There were goldsmiths (*Hiraṇyakāra*) who made gold ornaments. There were also potters, grinders of corn, barbers (*Vaptṛi*)[3], tanners (*charmamna*)[4] and physicians.

TRADE AND COMMERCE

Because of surplus products from agriculture and also from industries, there was extensive inland trade, and also trade with foreign countries. Goods were exported from one region to another in caravans consisting of bullocks, pack-horses, camels, etc. The *Paṇis* formed the great trading class both for inland and foreign trade. These *Paṇis* have been condemned in several verses for their greed and hard heartedness. They used to lend money to needy people at very high rates of interest. Haggling in the market was, however, well-known. Contracts seemed to have been made at the time of sale and purchase, and the term agreed upon could not be violated and altered afterwards.

Whether sea-borne trade was carried on by the Rigvedic Aryans is a question of controversy.[5] The arguments advanced in favour are as follows: (1) The *Rigveda* mentions men who go to the ocean (*samudra*) eager for gain[6] and *samudra* cannot be explained away in these passages as standing for the very broad and wide stream of the lower Indus; (2) There are some allusions to a trade more extensive than that implied by boats for crossing rivers; (3) Some verses tell us that the Aśvins rescued Bhujya in the ocean with a ship of a hundred oars *(śatāritra)*, a ship of this type could be needed only for a sea-voyage;[7] and (4) One hymn refers to "eastern and western ocean.[8] On ther hand, this view of sea-borne trade is opposed on the following grounds : (1) *nau* (boat or ship) was, in the majority of cases, merely a boat or 'dug-out' for crossing rivers, and there may have been large boats in use for crossing the broad rivers of the Punjab. These boats were so simple in their construction that only the paddle or oar (*aritra*) needed for propelling them is

1. *Ṛigveda*, IX, 112.1.
2. *Ibid.*, X. 72.2.
3. *Ṛigveda*, X, 142.4.
4. *Ibid.*, VIII, 5.38.
5. *TVA*, pp. 396-397.
6. *Ṛigveda*, I. 56.2; IV. 55.6.
7. *Ṛigveda*, I. 116.3 ff.
8. *Ibid.*, X. 136.5.

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mentioned; (2) Metaphors used by a people familiar with the ocean are lacking in the *Rigveda*; and (3) The numerous mouths of the Indus are ignored, although that river was the convenient natural outlet to the sea.

MEANS OF EXCHANGE

In the Rigvedic period, the society was partly agricultural and partly nomadic. Corn of course could not last long and precious metals like gold were not abundant. So the wealth of the people mostly consisted of hoards of cattle, they possessed. When barter was impracticable, cows were used as the medium of exchange. In one passage,[1] a sage mentions ten cows as the price of the *Indra* (image), he is offering for sale. In another place,[2] a sage declares that he would not sell his *Indra* even for a hundred or a thousand cows. The Bharata army going out for war is described as impelled by the desire to win cows.[3] For all practical purposes, therefore, the wealth of the Vedic Indians consisted of cows which also served as the media of exchange.

Cows were undoubtedly inconvenient as media of exchange. If an article was worth half a cow, one could not pay the price. Metals as media of exchange overcame this difficulty. They could be given in small bits, and are easier to handle. Among the precious metals, gold alone was well-known in the Rigvedic period.

Did gold currency exist in the Rigvedic age ? It is a disputed question. According to D.R. BHANDARKAR,[4] stamped and unstamped coins known as the *Nīshkas* and the *Hiraṇyapiṇdas* respectively were current at one and the same time. *Nīshka* signified a coin and also a necklace. In one place in the *Rigveda*, the sage Kakshīvat describes how he obtained one hundred *Nīshkas* from the king Bhāvayavyu. *Nīshka* was also used as a necklace. In one passage[5] of the *Rigveda*. Rudra is described as wearing a *Nīshka* which has been descrided as *Viśvarūpa*. About three hundred devices have been marked on Punch-marked coins. No wonder if the necklace of Rudra which was made of *Nishkā* coins is described as *Viṣvarūpa* i.e. covered with manifold *rūpas*. This proves that *Nishkas* were coined money.

According to D.R. BHANDARKAR, there was also unstamped metallic currency distinguished from the *Nīshkas* known as *Hiraṇyapiṇḍa*. In a passage in the *Rigveda*, a request is made to Indra to bestow upon the devotee *manas* of gold along with cows and horses. It seems, however, probable that the poet is here referring to a golden coin or piece especially since *mīnā* was used by the Babylonians to denote as lump or ingot of silver or gold of definite weight before regular currency was introduced among them.

Though *Nīshkas*, *Hiraṇyapiṇḍas* and *manas* had become well-known pieces of recognized weight and value, they connot be called gold coins. They appear to have been similar to the rings of gold. They were not coins in the modern sense of the term. There is no evidence in the *Rigveda* that the *Nīshkas* were issued under the authority of the state or guild and were stamped with symbols guaranteeing their

1. *Ibid.*, IV. 24.10.
2. *Ibid.*, VIII, 1.5.
3. *Ibid.*, III 33, 11.
4. *Carmichael Lectures on Indian Numismatics.*
5. *Rigveda*, XI. 33.10.

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contents and value. Gold *Nīshkas* or *piṇḍas* are mentioned only in connection with the description of fobulous gifts of numerous kings but in ordinary transactions, only cow was the medium of exchange.

RURAL CULTURE

Rigvedic culture seems to be a rural culture of tribal people. Urban life seems to have been absent, and people dwelt in villages (*grāmas*) which were scattered over the country, and connected by roads. The village was a group of houses which were made of wood. The beams of the houses were made of bamboo (also *vāṁśa*). It is not possible to give the exact meaning of '*pura*' mentioned in the *Ṛigveda* which later meant a town. Modern scholars interpreted them as earthwork fortifications to be resorted to in times of emergency. Forts made of stones (*aśmamaya*) are also mentioned. The adjective autumnal occasionally occurring may refer to forts in that season being occupied against the attack of enemies or against inundations caused by overflowing rivers.

RELIGION

The primitive Indo-European Aryans recognized only the nature gods such as sky, sun and wind, as well as fire cult. When they came into contact with the people of higher civilization on their migration to other regions, some of them adopted a Soma cult and also abstract deities known as *Asura* (New) gods like Varuṇa afterwards. There was no antagonism between *Daiva* worshippers and *Asura* worshippers upto the fourteenth century B.C. as it is clear from the treaty record discovered at Boghaz koi in which *Daiva* gods, Indra and Nāsatya appear side by side with *Asura* gods. When the Aryans settled in Iran, this antagonism gradually deepened. In course of time, most of the worshippers of the older *Daiva* religion migrated to India and settled in the region of *Saptasaindhava*.

NATURALISM AND ANTHROPOMORPHISM

The *Ṛigveda*, which is the earliest surviving document of the mankind, supplies abundant information regarding the religious thoughts, beliefs and practices of the Aryans. There are certain characteristics of this religion. Some of the religious practices remained associated with the most primitive grades and unsophisticated state of society while others are marked by an elaborate technique and advanced metaphysical speculations. Naturalism and anthropomorphism seem to be the first stages of this religion. The Rigvedic poets were deeply attracted by the wonders of nature. Perhaps, this led them to think that it is supernatural or divine character. As a result, they began to worship natural objects in anthropomorphic way and conceived them as immortal. The degree of anthropomorphism to which these gods have attained, however, varies considerably. When the name of the god and his natural basis is the same, the personification has not advanced beyond the rudimentary stage. Such is the case with Sūrya, Ushā, Agni, Soma, Dyaus and Pṛithvī. When, however, the name of the deity is different from the natural phenomenon

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which he represents, he tends to become dissociated with the latter. Such is the case with Indra, Varuṇa, Vishṇu, Rudra and the Aśvins. Many of the Rigvedic deities are being common and they represent the different aspects of one and the same phenomenon.

POLYTHEISM AND HENOTHEISM

The Rigvedic religion is said to be polytheistic because there were many gods called *devas* who were worshipped. "*Deva* is one who gives to man". God is *deva* because he gives the whole world. The Sun, the Moon and the sky are *devas* because they give light to all creation. There were also other such types of *devas* mentioned in the *Ṛigveda*. The polytheistic view for the peculiar religious thought seems to be doubtful. Each of the many gods, when praised is extolled by the hymn as the supreme God, the creator of the Universe and the lord of all gods. The God is addressed for the moment as if he were the greatest and even the only God. Almost in the same breadth, however (in the very next hymn), this mighty God is described as dependent on others. F. MAX MULLER thinks that polytheism is not an appropriate name for such a belief, and he coins a new word 'Henotheism' to signify this. The implicit demand of the religious conciousness for one supreme God made itself manifest in what is characterised as the Henotheism. This Henotheism is an unconcious groping towards Monotheism.

SOME SORT OF MONOTHEISM

If the varied phenomena of nature demanded many gods, the unity of nature required a single god who embraced all things that were. The person began to think of one reality. The multiplicity of the gods was frankly and boldly questioned, and ultimate unity of the universe was asserted as the creation of one God whom different designations are applied such as Viśvakarman, Bṛihashpati, Prajāpati and Hiraṇyagarbha. Viśvakarman is all-seeing god who has on every side eyes, faces, arms, feet, who produces heaven and earth through the exercise of his arms and wings, who knows all the worlds, but is beyond the comprehension of mortals. Bṛihaspati has also his claims for the supreme rank. In many places, it is Prajāpati, the lord of creatures. Hiraṇyagarbha, the golden god, occurs as the name of the Supreme described as the one Lord of all that exists.[1] This type of religious thinking led to some sort of monotheism.

NO IDOLATROUS

The Rigvedic religion does not seem to be an idolatrous one. There were no temples and images for gods. Men had direct communion with gods without any mediation. Gods were looked upon as friends of their worshippers. There was a very intimate personal relationship between men and gods.

1. Radhakrishnan, *Indian Philosophy*, p. 92.

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BASIS OF CLASSIFICATION OF THE GODS

1. *Universe*

The gods[1] are usually stated to be thirty three in number, divided into three groups, corresponding to the three divisions of the universe, namely terrestrial (*Pṛithvīsthāna*), aerial or intermediate (*antarikshasthāna* or *Madhyamasthāna*) and celestial (*dyusthāna*). Pṛithvī, Agni, Soma, Bṛihaspati and the rivers belong to the first order. Indra, Apām napāt, Rudra, Vāyu, Vāta, Parajanya, Āpaḥ and Mātariśvan to the second and Dyaus, Mitra, Sūrya, Savitṛi, Pūshan, Vishṇu, the Ādityas, Ushā and the Aśvins to the third. The division is overlapping and not very clear cut as Tvashṭṛi and Pṛithvī are assigned to all the three spheres; Agni and Ushā to the terrestrial as well as the aerial spheres; and Varuṇa, Yama and Savitṛi to the aerial as well as the celestial ones.

2. *Relative Greatness*

Classification of the Rigvedic gods has been done also according to relative greatness, but the difficulties of determining relative greatness are almost inseparable and only a few tentative conclusions are possible. For example, Indra, the mighty warrior and Varuṇa, the supreme moral ruler stand out pre-eminently above the rest. Agni and Soma—the two ritual deities—should come next but Indra, Agni and Soma are the three most popular deities judging by the frequency of the hymns addressed to them.

3. *Stastical Standard*

The statistical standard provided by the number of hymns dedicated to the gods and the frequency of the mention of their names is also not a sure guide.

Though the gods are described as born yet, they are immortal by drinking Soma. In appearance, they are human and take food when it is offered in sacrifice. They are benevolent.

THE CELESTIAL GODS

Dyaus

The oldest among the gods of heaven is Dyaus, a personification of the sky. He is called the ruddy bull bellowing downwards. He has fertilizing power of rain and thunder of heaven.

Varuṇa

Varuṇa is the upholder of the physical and moral order symbolized in *ṛita* with which he is more intimately connected than any other god. He is a universal monarch having a golden abode in heaven. There is uncertainty regarding the physical basis of Varuṇa. Varuṇa is pre-eminently the All Pervader, the All Encompasser and the All Enveloper.

1. *TVA*, pp 360-382.

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Sūrya

The Sun was worshipped in no less than five forms : (1) Sūrya, (2) Savitṛi, representing the quickening power of the Sun, (3) Mitra more famous in Iran than in India where he is associated with Varuṇa, (4) Pūshan, symbolizing the power of the Sun in its effects on the growth of herbs and vegetation and (5) Vishṇu representing the swift moving sun in the *Ṛigveda*, though later he is worshipped as an independent god.

Aditi

Aditi is naturally invoked to release his worshippers from bondage. Ādityas are the gods of light. They are described as sons of Aditi, and they received freedom from the clutches of darkness.

Aśvins

Aśvins are twin deities fond of honey and *Soma*. They are divine physicians. Their physical basis is a puzzle. Some think that they represent the morning twilight—half-light and half-dark. Another plausible theory is that which considers Aśvins as the morning and evening stars.

Ushā

Ushā, the goddess of dawn, is ever youthful, being born again and again, though ancient. Gaily-attired like a dancer with a garment of light, she rises in the east and exhibits her graces. Her association with the Sun is naturally very close, and he is her lover. She is the sister of night.

THE ATMOSPHERIC GODS

Indra

Indra is the god of thunderstorm who causes rains. He is the destroyer of demons so that he is naturally the favourite god of battle invoked more often than any other god of warriors.

Rudra

Rudra is fierce like a terrible beast. He is also exalted as the mightiest of mighty. The physical basis is not certain. It is suggested that the storm in its destructive aspect may explain the malevolent side of his nature while the fertilizing and purifying function of thunderstorm may well be the basis of his healing beneficient powers.

The Maruts

The Maruts are the storm gods. They made a loud noise represented by thunder and the roaring of the winds.

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THE TERRESTRIAL GODS

Agni

Agni, the god of fire, is found in his three forms—the Sun in the heavens, the lightning and the terrestrial fire.

The feeling of dependence and the definite hope and expectation of rewards that chiefly inspired the offering of prayers and oblations in the *Ṛigveda*. But who was to carry the offerings from earth to the gods in heaven ? The fire was thought of as an intermediary and messenger and as a bearer of oblational offering from men to gods.

ABSTRACT DEITIES

Even before entering India, the Aryans are known to have worshipped the new abstract and ethical deities which they might have adopted from the people of higher civilization with whom they came into contact.[1] As most of such deities occur in the last book of the *Ṛigveda*, it is wrong to assume their relatively late origin. It seems that being non-Aryan deities these abstract deities might have been recognized late by the Aryans in India. The abstract deities mentioned in the *Ṛigveda* are *Manyu* (wrath), *Śraddhā* (Faith), etc.

SACRIFICES

The Rigvedic religion attached great importance to the performance of different types of sacrifices. Simple sacrifices were performed at the time of birth, marriage and other occasions of daily life, at funerals and ancestor worship as well as at ceremonies for ensuring the fertility of the cattle and growth of the field. In addition to these and a few incantations in the tenth *Maṇḍala* which represents popular religion consisting of spells to defeat rivals, to prevent and cure diseases and to repeal dreadful animals. There are also references to grand sacrifices which could only be undertaken by aristocratic and wealthy men and especially by the king, and priest received liberal payment (*dakshiṇā*). Animal sacrifices are also indicated, and horse sacrifice was undoubtedly performed.

OTHER RELIGIOUS BELIEFS AND VIEWS

The Rigvedic Aryans believed in the life after death in the world. They had optimistic outlook of life which is clearly reflected in the hymns. The *Ṛigveda* is full of prayers for long life, freedom from disease, heroic progeny, wealth, power, abundance of food and drink, the defeat of rivals, etc. The religion, which they practised, seems to have utilitarian value for them. It provides them with joys and pleasures of the world.

1. *TVA*, p. 219.

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CHAPTER XV

LATER VEDIC PERIOD

The history of the civilization of the Later Vedic Period is revealed by works like the later *Saṁhitās*, the *Brāhmaṇas*, the *Āraṇyakas* and the *Upanishads*. The later *Saṁhitās* comprise *Yajurveda*, *Sāmaveda*, and *Atharvaveda*. The *Brāhmaṇas* attached to the *Vedas* are theological treatises in prose, explaining in detail the value and efficacy of sacrifices. The important *Brāhmaṇas* are the *Aitareya*, *Śatapatha*, *Pañchaviṁśa* and *Gopatha*. The *Āraṇyakas* are the concluding portions of the *Brahmaṇas*, so called, because on account of their mystical character, they had to be studied in the seclusion of the forest. The extant only—e.g., *Aitareya*, *Kaushītakī* and the *Taittirīya*—form appendages of the *Brāhmaṇas* of the same name. The *Upanishads* discard sacrifices, and there is mention as to how to obtain *jñāna* and deliverance by the absorption of the individual soul in the world-soul. Besides *Chhāndogya* and *Bṛihadāraṇyaka*, there are ten other *Upanishads*, viz. *Taittirīya*, *Aitareya*, *Kaushītaki*, *Kaṭho*, *Śvetāśvatara*, *Isa*, *Kena*, *Praśna*, *Muṇḍaka* and *Māṇḍūkya*.

TRIBAL GROUPINGS AND POLITICAL DIVISIONS

During this period, many old tribes of the Rigvedic times disappeared. Some were either merged into others or known by different names. Besides many fresh tribes came into existence. The amalgamation of tribes and their wars of aggrandisement gradually led to the formation of bigger territorial units as compared with those of the Rigvedic times.

KURUS

The Pūrus along with the Bharatas were amalgamated with the Kurus. The Kuru kingdom roughly corresponded to modern Thanesar, Delhi and the upper Gangetic Doab.[1] The *Atharvaveda*[2] speaks of Kuru king Parīkshit in whose reign this Kingdom flourished exceedingly. The people were happy and contented. His descendant Janmejaya, who performed an *Aśvamedha* at Āsandhīvat, probably Hastināpura of later days, was a great conquerer.

1. *PHAI*, p. 20.

2. XX. 127.7-10.

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PAÑCHĀLAS

The Pañchālas were also a composite class, as this name, derived from *Pañcha*—five, shows. According to the *Śatapatha Brāhmaṇa,* they were formerly called Krivis, who may, therefore, have been one of the constituent tribes. Perhaps, the earlier Ahus, Druhyas and Turvas that disappeared at this period also comprised the confederation. They have been mentioned as the close allies of the Pañchālas. Some of the Pañchāla kings must have achieved notable victories, as they are said to have performed the horse sacrifice. The *Upanishads* mention Pravāhaṇa Jaivali, a patron of learning, who used to hold intellectual tournaments at his court. The territory of this tribe roughly corresponded to the Bareilly, Badaun, Farrukhabad, and adjoining districts of the United provinces.[1]

ŚṚIÑJAYAS

The Śṛiñjayas stood in this period in close relationship to the Kurus. The *Śatapatha Brāhmaṇa*[2] supports this view by stating that the Kurus and the Śṛiñjayas had one *Purohita.* The *Yajurveda* refers to the Śṛiñjayas having suffered some serious loss due to some ritual error.

VAŚAS AND UŚĪNARAS

The Vaśas and the Uśīnaras were dwelling in the middle country with the Kuru-Pañchālas. The *Gopatha Brāhmaṇa*[3], which speaks of the Vaśas and the Uśīnaras as united, regards them as Northerhers[4]. The country of Vaśas later known as Vatsas was situated round about Kauśāmbī their capital.

ŚIBIS

The Śibis were intimately associated with the Uśīnaras. The *Aitareya Brāhmaṇa*[5] refers to Amitratāpana, a king of the Śibis. The Śibis inhabited the Shorkot region in Jhang in the Punjab lying between the Irāvatī and the Chandrabhāgā.

MATSYAS AND ŚĀLVAS

The Matsyas appear with the Śālvas in the *Gopatha Brāhmaṇa.*[6] Dhvasana Dvaitavana, one of their great kings, performed the horse sacrifice. The territory of the Matsyas may be identified with modern Jaipur and Alwar Districts. The Śālvas, who are known to be their close neighbours, occupied some portion of the region.

KOSALA

Probably after the downfall of the Kurus and the Pañchālas, Kosala, Kāśī and Videha came into prominence in Later Vedic Age. It is not clear whether people of these tribes were a branch of the Kuru-Pañchālas or they were different ones.

1. *PHAI*, p. 59.
2. II. 4.4.5.
3. I. 2.9.
4. II. 9.
5. VIII. 23.10.
6. I. 2.9.

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The fact that these three kingdoms seem to have remained connected for sometime is clear from the fact that the three had the same *Purohita* acting for them.

Among the above three eastern Kingdoms, Kosala received the light of the Vedic civilization first. It was under the domination of the house of Ikshvāku. The earliest capital of this kingdom was Ayodhyā. This kingdom roughly corresponded to Oudh.

KĀŚI

The famous ruler of Kāśī was Ajātaśatru who belonged to the Brahmadatta line. He was a great patron of men of letters. Earlier than the Brahmadattas, it was ruled by a family that traced its descent from Purūravas. The twenty-third Jaina Tīrthaṅkara Pārśvanātha, who died 250 years before Mahāvīra i.e. in or about 777 B.C., was the son of King Aśvasena of Kāśi.

VIDEHA

Videha was almost identical with modern Tirhut, and its capital was Mithilā. The most notable ruler of this kingdom was Janaka, the royal scholar and philosopher of the *Upanishads*. He encouraged philosophical discussions, and his court was adorned by intellectual celebrities of the type of Yajñavalkya.

MAGADHA, ANGA AND VANGA

Magadha, Aṅga and Vaṅga seem to be the eastern most tribes. Magadha corresponded roughly to Southern Bihar. The Aṅgas might have occupied their settlements on the rivers Son and the Ganges. The Vaṅgas appear to be the residents of Eastern Bengal. In the *Atharvaveda*, fever is wished to the Magadhas, Aṅgas and some other peoples. The Magadhas are also associated with the Vrātyas.[1] The *Yajurveda* includes Magadha in the list of victims at *Purushamedha*. The *Aitareya Āraṇyaka*[2] mentions Vaṅgas and Vagadhas (Magadhas). OLDENBERG, however, thinks that these tribes were the earlier Aryan immigrants. Confirmation for this may be sought in the Puranic evidence which speaks of the Ikshvākus and the Videhas being of the same stock and as inhabiting the country since Rigvedic times. Actually the region occupied by these eastern tribes, was outside the pale of orthodox Brahmanism, and Vrātyas inhabiting Magadha seem to be the non-Aryans speaking a strange unintelligible language.

NORTHERN TRIBES

Among the Northern tribes were the Uttarakurus, the Uttaramadras, Mūjavants, Mahāvṛishas, Gandhārīs, Bāhlīkas, Keśins, Kekayas, and Kāmbojas.

UTTARAKURUS

The *Aitareya Brāhmaṇa* states that one Jānantapi Atyarāti was anxious to conquer the country of the Uttarakuru called the land of the god. ZIMMER places

1. *Atharvaveda*, XV. 2. 1-4.
2. II. 1.1.

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the Uttarakurus in Kashmir to the north of Kurukshetra, and probably they were on offshoot of the Kurus.

UTTARAMADRAS

The Madra people were divided into two sections, the Uttara (Northern) Madras and the Southern Madras. The Uttaramadras dwelt beyond the Himalayas probably in the land of Kashmir. The mention of Madragāra Śauṅgāyani as an ancient Vedic teacher shows the Madras as experts in Vedic learning, a fact which is confirmed by the *Śatapatha Brāhmaṇa* which states that sages of northern India repaired to the Madra country to study the *Vedas*.

MŪJAVANTS

The *Yajurveda* also speaks of the Mūjavants as a distant people. If the people took their name from Mūjavant, a mountain in the Himalayas, which seems to be quite likely, they were a hill-tribe in the Himalayas.

MAHĀVRISHAS

The exact location of the Mahāvṛishas cannot be ascertained. The *Chhāndogya Upanishad* places king Raikvaparṇa in the Mahāvṛisha country, and the *Jaiminīya Upanishad Brāhmaṇa* mentions Hṛitsvāśaya as the king of the Mahāvṛishas.[1]

GANDHĀRĪS

The *Aitareya Brāhamaṇa*[2] mentions Nagnajit, a king of Gandhāra, among Vedic teachers who propagated the Soma cult which shows that Gandhāra still remained associated with the Vedic Aryans.

BĀHLĪKAS

Bāhlīka was the name of a Kuru prince[3], and it is possible that the tribe might have been named after the name of this prince. These, along with the three above peoples, were a contiguous northern tribe.

KEŚINS

A tribe named Keśins is mentioned in the *Śatapatha Brāhmaṇa*[4] where their king is said to be studying how to avert a bad omen at the sacrifices. They were probably a branch of the Pañchālas.

KEKAYAS

The Kekayas are found mentioned in the *Śatapatha Brāhmaṇa*[5] and the *Chhāndogya Upanishad*.[6] Their king Aśvapati, who instructed a number of Brāhmaṇas, was a man of learning.

1. *TVA*, p. 259.
2. VII. 34.
3. *Satapatha Brahmaṇa*, XII. 9,3.8.
4. XI. 8.4.6.
5. X. 6.1.2.
6. V. II.4.

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KĀMBOJAS

The name of the Kāmbojas occurs in the *Vaṁśa Brāhmaṇa* of the *Sāmaveda* where a teacher Kāmboja Aupamanyava is referred to. From the fact that Kāmboja Aupamanyava is stated to be a pupil of Madragāra, ZIMMER infers that the Kāmbojas and the Madras were close neighbours in north-western India[1]. The territory of this tribe was an Aryan settlement because its teachers were reputed for their Vedic learning.

SOUTHERN TRIBES

The Aryan settlements during the Later Vedic Age in South India are known from the tribes Satvantas, Vidarbhas, Nishādas and Kuntis. They prove that the Aryans penetrated upto the Narmadā and the Vindhyas. The region occupied by these regions was within Aryan fold.

SATVANTS

The Satvants suffered the raids of the Bharatas. The *Śatapatha Brāhmaṇa*[2] refers to the defeat of the people of this tribe by king Bharata who took away their horse prepared for the *Aśvamedha*. It further iudicates that they lived near Bharata's kingdom, i.e. near the Gaṅgā and Yamunā[3]. They seem to have moved further south by the time of the *Aitareya Brāhmaṇa* which places them in the southern region beyond the Madhyadeśa, probably beyond the river Chambal (Charmaṇvatī).[4]

VIDARBHA

Vidarbha is known through its king Bhīma, mentioned in the *Aitareya Brāhmaṇa*[5] as having received instruction about the substitute for the *Soma* from Parvata and Nārada. The Vidarbha kingdom was said to be famous for its special breed of hounds, which killed tigers. LASSEN places Vidarbha along the Sātpurā hills to the north-west of Berar.[6]

NISHĀDHAS

The Nishādhas seem to have probably belonged to the Aryan fold. King Nala of Nishādha is a celebrated figure in the *Mahābhārata* and the *Purāṇas*. The location of the Nishādha country is not known with certainty, though it may be assumed to be contiguous to Vidarbha.[7]

NON ARYAN TRIBES

Some non-Aryan tribes of the Later Vedic Period are known from the *Aitareya Brāhmaṇa* which mentions the Āndhras, Puṇḍras, Śabaras, Pulindas and

1. *TVA*, p. 259.
2. *XIII*, 5.4 21.
3. *VIII*, 5.4.11.
4. *PHAI*, p. 76.
5. *VII*, 34.
6. LAW : *Tribes in Ancient India*, p. 100.
7. *TVA*, p. 257.

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Mūtibs. These were *Daśyus* living on the borders of the Aryan settlements. They were outside the Aryan fold. The Āndhras, Śabaras and Pulindas are known to be the tribes of the south. The Āndhras lived between the Kṛishṇā and Godāvarī[1]. The exact location of the Śabaras is not known. They are probably ancestors of the Savaralu or Sauras of the Vizagapatam hills, the Savaris of the Gwalior territory and the Savages on the frontiers of Orissa.[2] The territory of the Mūtibas has not yet been located. The Pulindas seem to have settled along with the Āndhras probably to the south-east of the Bhilsa region. The Puṇḍras were situated in North Bengal and gave their name to their capital town Puṇḍravardhana.

The settlements of these Aryan tribes in the Later Vedic Period prove that the Aryans were endowed with the spirit of adventure. During the Rigvedic period, the Aryans generally occupied the region of *Saptasaindhava* but now they were spreading in every direction, colonizing the north, south and east. In the North, they advanced up to Kashmir and the Himalayas. In the south, the territory of Narmada and even some further south of it was within the sphere of Aryan influence. In the east, their hold was upto Videha. In the North-west parts of India, their influence was reduced. During the Rigvedic period, the main centre of their culture was the region of Sarasvatī and Dṛishadvatī vallies but, now it shifted to the eastern regions. Kurukshetra, Madhyadeśa, the land of Yamunā and Gaṅgā, Kosala, Kāśī and Videha (North Bihar) rose as great Aryan centres in the east.

Further during the Later Vedic Age, there are clear signs both of more developed city life and of more settled habits. There are fairly clear references to Āsandivant, the Kuru capital, Kämpilya, the capital of Pañchāla, Kauśāmbī and Kāśī. These tribes gradually settled and become territorial units.

POLITICAL INSTITUTIONS

The origin of kingship forms a subject of speculation in the literature of the Later Vedic Period, because there wes a keen struggle for supremacy among the kings and some of them became powerful and established vast kingdoms by annexing the neighbouring kingdoms. The government during this period became more complex than the Rigvedic Age because of the necessity of appointing a large number of new officers as known from the *Ratṇahaviṁshī* ceremony of the *Rājasūya* coronation. The influence of *Sabhā* and *Samiti* gradually diminished.

FORM OF GOVERNMENT

Monarchy was the normal form of government during this period as it is clear from the names of the rulers of the several kingdoms. But there were other types of the States because the first and nearest attempt at the classification of the types of government is found in the *Aitareya Brāhmaṇa* where the terms *Svarājya* and *Vairājya* were used in the sense of the republican constitutions. The regions, which are credited with the two types of government, suggest that the greater portion of Aryan India namely West and North were studded with republican

1. *ZDMG.* 56. pp. 657 ff.

2. *PHAI*, p. 79.

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constitutions. Two trans-Himalayan tribes Uttarakurus and Uttaramadras have been described as having a '*Vairājya*' form of government.

ORIGIN OF KINGSHIP

There are references to the origin of kingship through election among the gods on account of the compelling necessity of carrying on successful war against the *Asuras*[1]. It is further stated that headed by Prajāpati, the gods said to one another that amongst them, Indra was the most vigorous, the most strong, the most perfect and the best in carrying out any work. So they decided to instal him in kingship.[2] Obviously, election implies some sort of consent both on the part of the electors as well as the elect. The election in divine society might be regarded as a reflection of the practice in the existing Vedic society. The kingship originated in military necessity and derived its validity from consent. This type of political speculations might have been inspired from the fact that the Aryan tribal chiefs with the consent of their fellows fought hard battles against their enemies in order to establish large kingdoms.

Status of the King

With the emergence of the powerful and big kingdoms, the status of the king naturally increased. The ideal of 'paramountcy' or "universal sovereignty' now began to loom large on the political horizon, and kings performed sacrifices like the '*Vājapeya*', the '*Rājasūya*' and the '*Aśvamedha*' to symbolise the degree of success achieved in realising their ambitions. The *Aitareya* and *Śatapatha Brāhmaṇas* mention the names of some monarchs, who performed the '*Aśvamedha*' sacrifice along with the '*Aindra Mahābhisheka*' such as Para of Kosala, Sātānīka Sātrājita and Purukutsa Aikshvāku, etc. As the kings extended their sway, their titles also changed. Thus, *Rājā* was used for an ordinary ruler, and *Adhirāja, Rājādhirāja, Samrāṭ, Virāṭ, Ekarāt* and *Sārvabhauma* denoted various gradations of suzerains.[3]

The importance of the kingly rank is reflected even in the elaborate rite of the royal consecration, the *Rājasūya*. The king is clad in the ceremonial garments of his rank, is formally anointed by the priest, steps on a tiger skin to attain the power of the tiger, takes part in a mimic cattle raid, assumes the bow and arrow, and steps as a conqueror to each of the four quarters.

Divinity of the King

The growing power of the king is attributed to divinity. In the *Atharvaveda*, the king Parīkshit is described as a god among men, and the *Śatapatha Brahmaṇa* describes the king as the visible symbol of god Prajāpati himself. At the time of the coronation, the priest made the king *adaṇḍya*, i.e. above ordinary punishment. According to the *Aitareya Brāhmaṇa* and the *Śatapatha Brāhmaṇa*, king is identical with deities namely Savita, Agni, Soma, Bṛihaspati, Indra, Rudra and so because

1. *Aitareya Brāhmaṇa*, I. 1.14; *Taittirīya Brāhmaṇa*, I, 5.9.
2. *Ibid.*, VIII. 12.7.
3. R.S. Tripathi : *History of Ancient India*, p. 43.
4. CHI, p. 116.

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of the common functions. Like Savita, the king needed energy; like Agni, needed family virtue; like Bṛihaspati, required eloquence and so on. A.S. ALTEKAR[1] thinks that growing sway of religious ideas and notions produced an atmosphere in the Brahmanical period which was more favourable to the notion of the king's divinity. The king's growing power is indicated by the description of the Vaiśya and Brāhmaṇa as liable to be expelled at will.

Kinghsip Hereditary

Generally, the kingship was hereditary. The Śṛiñjayas ruled for ten generations, and this practice of succession is also noticed in the case of other kingdoms. The term '*Rājaputra*' found in the texts of this period can be interpreted as 'king's son'; and it also bears testimony to the same fact. Occasionally, however, a king was selected by the people though the choice was probably restricted to the members of the royal family. The election of kings is certainly referred to in certain passages[2], but they are interpreted by GELDNER[3] as indicating the purely formal approval of the king's occupation of the throne by the subjects (viś) rather : than a selection, in all seriousness, of the king by the cantons (viś). Nevertheless, it is certain that in emergencies, people had the power of selecting one member of the royal family in preference to another who was incompetent.[4]

Ability and Functions

The kings of this age are known to be well versed in the *Vedas* and the *Upanishads.* Some of them not only patronized learning but were themselves teachers and had been Brāhmaṇa disciples. Such highly cultured kings must have generally proved benevolent rulers. It is clear from the advice of the priest who offered at the time of coronation in these words, "As a ruler, from this day onwards, judge the strong and the weak impartially and fairly. Strive unceasingly to do good to the people and above all, protect the country from all calamities".[5]

The king's main function was the protection of state and people, and for this he must be firm and vigorous. He used to lead the army in the battle-fields. Though the sages had the power to interpret the Sacred Law which sustains the universe but it was the clearly recognised duty of the king to abide by, and give effect to it. He used to take active part in the administration of justice.

The king could give grants of land, but it implied transfer of privileges regarding revenue but no ownership from the cultivators. Similarly, the king granted to his favourites his royal prerogatives over villages in fiscal matters. That a gift of land in the sense of "the conferring of ownership" was looked upon as a wrong custom may be inferred from the story in the *Śatapatha*[6] and *Aitareya Brāhmaṇas*[7] that when king Viśvakarman offered the earth (probably a piece of land) to his officiating priest, the earth refused to be given. Such gifts of land probably constituted a violation of customary law. The conception of the absolute royal ownership of all land does not seem to have arisen during this period.

1. *State and Government in Ancient India,*
2. *Atharvaveda,* I. 9; III. 4; IV. 22.
3. *Vedische Studies,* 2, 303.
4. TVA, p. 428.
5. *White Yajurveda,* X. 27.
6. XIII, 7.1-15.
7. VIII, 21.8.

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Limitations on the Power of the King

Inspite of the growth of the power of the king during this period, there were also certain limitations. The election or acceptance of the king by the people in some passages of the *Atharvaveda*[1] prove their some sort of popular control over the king. Besides from the oath taken by the king on the occasion of the coronation ceremony, it is clear that he was responsible towards the people who had the power to punish kings if an emergency arose by banishing them. In the *Tāṇḍya Brāhmaṇa*[2], a sacrifie is mentioned whereby the officiating Brāhmaṇa would help the subjects to destroy the king. The Śṛiñjayas expelled their king Oushṭarītu Pauṁsāyana from the kingdom in spite of his ten generations of royal descent.[3]

Not only people but even the high functionaries known as *Ratnins* (jewels) of the state seem to have exercised some sort of control over the king. It is for this reason that on the occasion of the royal coronation ceremony, he visited the home of each *Ratnin* and offered oblations to appropriate diety. As he was powerful, the king wanted to gain his help and confidence.

That *Sabhā* and *Samiti* referred to above, continued to exercise powerful check over the king in the beginning of this period is clear from the two passages of the *Atharvaveda*.[4] On injuring by the king, the Brāhmaṇa gave a curse that the *Samiti* may not suit you. A prayer for a consecrated king with a list of blessings on him at the end of which it is stated that the *Samiti* may suit him.

SABHĀ AND SAMITI

From the available isolated references of the *Sabhā* and the *Samiti* in the later Saṁhitās, it is difficult to distinguish clearly between the functions of the *Sabhā* and the *Samiti*. All that can be said is that discussion and decision on policy of all kinds as well as legislation constituted the main business of the *Samiti* which was a larger body, whereas judicial work, which could also be transacted by the *Samiti*, fell chiefly within the purview of the *Sabhā*, though the latter had the right to disccuss political matters also.[5] As this period advanced, with the increase of the power of the king at the growth of large territorial states, *Sabhā* and *Samiti* lost their importance. Their place was gradually taken by *Mantrīparishad* and official machinery. Both *Sabhā* and *Samiti* are hardly referred to in Brahmanical literature.

ADMINISTRATIVE MACHINERY

That administrative machinery became more complex and more developed during this period than the Rigvedic period is clear from a large number of officers mentioned in connection of the *Ratnahaviṁshī* ceremony associated with the kings coronation in some later *Saṁhitās* and the *Brāhmaṇas*.[6] These officers consisted of his relatives, courtiers, heads of the departments and even non-Aryans. New officers were appointed to meet the needs of the time, and they were related to

1. I.9; III.4; IV.22.
2. VI. 6.5.
3. *TVA*, p. 428.
4. V. 19.15; VI. 88.3.
5. *TVA*, p. 429.
6. *Taittirīya Brāhmaṇa*, *Śatapatha Brāhmaṇa*, *Maitrāyaṇī Saṁhitā*, *Kāṭhaka Saṁhitā*, etc.

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religion, sports, cattle, etc. The names of these officers are as follows—(1) *Brāhmaṇa* or (*Purohita* (Priest), (2) *Rājanya* (Representing warrior class), (3) *Mahishī* (chief queen), (4) *Parivikṛti* (discarded wife), (5) *Senāni* (Commander-in-chief), (6) *Sūta* (court minstrel, (7) *Graminī*, (Head of the village or troop leader), (8) Kshata (Chamberlain, (9) *Saṁgrahitṛi* (Master of treasury), (10) *Bhāgadugha*, (Tax Collector, (11) *Akshāvāpa* (An offiecr in charge of state accounts), (12) *Govikartana* Keeper of games and forests), (13) *Tākshan* and *Rathakāra* (Carpenter and Chariot maker) and (14) *Palāgala* (Messenger).

The importance of these officers in the administration was recognized by scholars. These *Ratnins* formed some sort of King's council for advising and helping the king. The authority of this council was felt on the occasion of King's death and succession of a new ruler to the throne. K.P. JAYASWAL[1] thinks that the king wants to gain the support and confidence of these officers who were bestowed with some sort of Sovereign power. U.N. GHOSHAL[2] points out that the king was anxious to win the allegiance of high functionaries of the state who were the pivots of the state responsible for the formation and execution of the policy. They were the givers and the takers of the kingdom. According to A.S. ALTEKAR[3], the new king wants to create a feeling of attachment and loyalty by visiting the houses of his officers. The office of '*Bhāgadugha*' for the collection of taxes presupposes the king's rule over the fixed territory.

JUSTICE

The king himself appears to have administered[4] justice, and he was probably helped by assessors. In his absence, he could delegate his jurisdiction to a royal officer, because the *Kāṭhaka Saṁhitā*[5] mentions the *Rājanya* as an overseer (*adhyaksha*) when a Śūdra is punished. The main crimes recognized were robbery, adultery, incest, abduction, the killing of an embryo, the killing of a man, the slaying of a Brāhmaṇa and drinking liquor. Petty offences seem to have been left to the *Grāmyavādin* or village judge for disposal. That a sense of justice was high is clear from the fact when a child was accidentally runover and killed by the king and the *Purohita* (Priest) driving in a chariot, the matter was referred for arbitration to the Ikshvākus who gave the judgement than an expiation was due. For evidence, eye-witnesses were more important than informers. The punishments for crime were rather severe. In severe cases, death or the cutting off the hands was the penalty. Ordeals were also probably looked upon as valid tests of innocence or guilt.

Individual property or individual ownership in land for the purpose of cultivation was recognized. The *Taittirīya Saṁhitā*[6] has the famous episode of Manu's division of property among his sons. This indicates the practice that a father's property was divided among his sons either during his life or after his death. The father owned the property, and the sons, when grown up, might claim the property and

1. *Hindu Polity.*
2. *A History of Hindu Political Theories.*
3. *State and Government in Ancient India.*
4. V. 4.4.7.
5. XX VII.4.
6. III. 1.9.4.

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induce the property to divide it. As regards the division, preference was shown to the elder son. Women were excluded from inheritance or partition. Neither they nor the Śūdras had any right to property. The husband in all probability claimed the wife's dowry and earnings if any.[1]

SOCIAL CONDITIONS

Important social changes took place during the Later Vedic Period. The divisions became more pronounced in the society, and the caste-system on the basis of birth was on its way towards crystallisation. A large number of castes came into existence. The *Āśrama* system started as it is found mentioned in the *Brāhmaṇas* and the *Upanishads*. The joint family gradually began to disintegrate. The position of the Śūdras and the women started to lower in the society. The importance of the marriage increased because of the starting of the *Āśrama system*. The system of education became gradually specialised, and different branches of learning came into existence.

CASTE SYSTEM

The Later Vedic Period is of special importance in Indian history from the social point of view because the later *Saṁhitās* and the *Brāhmaṇa* works show that the three classes of Brāhmaṇas, Kshatriyas and Vaiśyas had become differentiated and their privileges duties and liabilities had become more or less fixed in those times. According to P.V. KANE[2], the determination of these castes was generally recognized on birth. *Varṇa* was used in the sense of caste but not in colour. This system of the four *Varṇas* had taken such deep roots that it extended even to the gods. Agni and Brihaspati being the Brāhmaṇas among gods; Indra, Varuṇa, Soma, Yama being the Kshatriyas; Vasus, Rudras, the Viśva Devas and Maruts being the Viś, and Pūshan being the Śūdra. Similarly, it is said 'the Brāhmaṇa is really spring, the Kshatriya Summer, and the Viś are the rainy season.[3]

During this age, owing to the cultural advancement and division of labour, numerous arts and crafts led to the creation of numerous sub-castes based on occupations. Besides four Varṇas, intermediate cases such as *Rathakāra*, *Karmāra* and *Sūta* also evolved.[4] The Chāṇḍālas and the Pulkasas are found mentioned as low castes.

The Brāhmaṇas and the Kshatriyas were regarded as higher than the Vaiśyas and the Śūdras, but about the superiority among the two, there is no unanimity. Because of the growth of rituals and sacrifices, the influence of the Brāhmaṇas in the society increased, and they were considered to be equal to gods. In the *Tāittirīyā Saṁhitā*,[5] the Brāhmaṇas, who have studied and taught the sacred lore, are mentioned as the human gods, In the *Atharvaveda*,[6] the pre-eminence of Brāhmaṇa has been recognized, and therefore he is the foremost. In the *Aitareya Brāhmaṇa*[7],

1. *TVA*, pp. 433-435
2. *History of Dharmaśāstra*, p. 36.
3. *Ibid*, p. 42.
4. *Atharvaveda*, III. 5.6; III. 5.7
5. I. 7.3.1.
6. V. 17.19
7. 33.4

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Varuṇa when he was told that a Brāhmaṇa boy would be offered in place of the son of the King Hariśchandra is made to say, "A Brāhmaṇa is indeed preferable to a Kshatriya." The more fact of birth as Brāhmaṇa's son is represented here as giving to the boy pre-eminence over a king's son. In the *Taittirīya Brāhmaṇa*,[1] it is said that playing on the *Vīṇa* (in the *Aśvamedha*) is to be done by a Brāhmaṇa and a Rājanya (and not by two Brāhmaṇas), since wealth does not find delight in the Brāhmaṇa. From these examples, it is proved that Brāhmaṇa became hereditary. The *Śatapatha Brāhmaṇa*[2] lays emphasis on the four peculiar attributes of Brāhmaṇas viz. *brāhmaṇya* (Purity of parentage as a Brāhmaṇa), *Pratirūpacharyā* (befitting deportment or conduct), *Yaśas* (glory) and *lokapakiti* (the teachiug or perfecting of the people). When the people are being perfected or taught by him, people endow him with four privileges viz. *archā* (honour), *dāna* (gifts), *ajyeyatā* (freedom from being harassed) and *avadhyatā* (freedom from being harassed).

A Kshatriya was considered to be the lord of all, and defender of *dharma* and Brāhmaṇas.[3] As a result of the extent of his kingdom, his power increased gradually more and more. The cooperation of Brāhmaṇa to Kshatriya results in glory and success.[4] A Brāhmaṇa may remain without a king, but a king should not be without a Brāhmaṇa. Even the gods required a *purohita* as the *Taittarīya Saṁhitā*[5] says. A Rājanya, who has a Brāhmaṇa to help him, is superior to another Rājanya.[6] The *Śatapatha Brāhmaṇa*[7] declares that a king, who is humble before the Brāhmaṇas, become more powerful than his foes. Thus, in the society, a Brāhmaṇa occupied the higher position in society than a Kshatriya.

Sometimes Kshatriyas claimed higher and also paid scant respect to Brāhmaṇas. The *Aitareya Brahmaṇa*[8] points out that nation does not take kindly to a Brāhmaṇa, whenever the king likes, he conquers Brāhmaṇa. Goddess of fortune and goddess of sovereignty do not like the Brāhmaṇa to be a king. In the *Bṛihadaraṇyaka Upanishad*, there is a passage where we are told that there is none higher than Kshatriyas. Therefore, the Brāhmaṇa sits down below the Kshatriya in the *Rājasūya*. The dialogue between Śarmishṭhā and Devayāni, who were the disciples of the Brāhmaṇa, clearly indicates the supreme position of Kshatriya over Brāhmaṇa. Śarmishṭhā says "You are a daughter of begger, flatterer and one who receives donation but I am the daughter of one who is praised, gives money in charity and is flattered. Śarmishṭhā does not give a *Sārī* to Devayāni."

It is clear from the *Upanishadic* literature that some of the kings of the age were not only the patrons of philosophers but were themselves well versed in the profound philosophical speculations of their times. Even the Brāhmaṇas came to them as pupils to satisfy their intellectual thirst. For example, Yājñvalkya learnt from Janaka,[9] Bālāki Gārgya from Ajātaśatru, king of Kāśi,[10] Śvetaketu Āruṇeya from

1. *History of Dharmaśāstra*, p. 37.
2. XI, 5.7.1.
3. *Aitareya Brāhmaṇa*, 38 & 39-3.
4. *Śatapatha Brāhmaṇa*, 4.1.4.6.
5. II. 5.1.1.
6. *Śatapatha Brāhmaṇa*, V. 4.15.
7. V. 4.4.15.
8. VII. 29.
9. *Śatapatha Brāhmaṇa*, XI. 6.21.5.
10. *Bṛihadāraṇyaka Upanishad*, II. I. *and Kaushītaki Upanishad* IV.

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Pravāhaṇa Jaivali[1] and five Brāhmaṇas from Aśvapati, King of Kekaya.[2] Some scholars are of opinion that the deep thoughts of the *Upanishad* doctrine did not proceed from the Brahmanical but the Kshatriya circles.

The Vaiśyas cultivated land, reared cattle and carried on trade. They were entitled to sacrifice. They were far more numerous than the Brāhmaṇas and the Kshatriyas, and they lived apart and they were obedient to these two castes. Because of the similarity of the professions, their contact was much more with the Śūdras, and they had to bear the burnt of taxation.

Dāsas were called the Śūdras, and there are contradictory statements on their conditions. According to the *Aitareya Brāhmaṇa*,[3] the Śūdra is a servant of mother to be expelled at will and to be slain at will, and he had no right of property. The *Pañchaviṁśa Brāhmaṇa* declares that the Śūdra, even if he is prosperous, cannot but be a servant of another, washing his superior's feet being his main business. The milk to be used for fire-oblation was not allowed to be milked by a Śūdra. He was not to be addressed by a person consecrated for sacrifice. He is declared to be unit for sacrifice and not allowed even to be present, in the hall where the sacrifice was being offered. How far these ideas were actually practised, nothing can be said. On the contrary from the stories of the *Upanishads*, it is known that Satyakāma, Jābāla and Jānaśruti were the Śūdras, but they were not deprived from the study of the Vedic literature. The *Śatapatha Brāhmaṇa* did not permit the Śūdra for the performance of the Soma sacrifice.

That there were other professions and crafts with specific names which in the Later Vedic Age became castes, is quite clear—*Vaptā* (barber), *Tashṭā* (carpenter), *Bhishaka* (Medicine man), *Karmāra* (Iron smith) and *Charmamna* (tanner). The *Atharvaveda*[4] mentions *Rathakāra, Karmāra* and *Śūta*. In the *Taittirīya Saṁhitā*,[5] mention is made of *Kshatṛi* (royal chamberlain or door-keeper), *Saṁgrahitṛi* (treasurer), *Takshan* (Carpenter) and *Rathakâra* (maker of chariots), *Kulāla* (Potter), *Karmāra, Punjishṭa* (fowler), *Nishāda, Ishukrit* (maker of arrows), *Dhanvakṛit* (Maker of bows), *Mṛigaya* (hunter) and *Śvani* (those who lead packs of hounds). These also occur in the *Vājasaneya-Saṁhitā*[6] and in the *Kāṭhaka Saṁhitā*.[7] In the *Taittirīya Brāhamaṇa*,[8] the names of *Āvogū, Māgadha* (bard), *Śūta, Śaiūsha* (actor) *Rabha, Bhīmaka, Takshan, Kaulāla, Karmāra, Maṇikāra Vapa* (sower or barber), *Ishukāra, Dhanvakāra, Jyākara*, (Maker of bow-string), *Rajjusarga, Mṛigayu, Svanisurākāra* (Vintner), *avastāpa* (heater of iron or copper), *Kitava* (gambler), *Bidalakāra* (worker in wicker-work) and *Kaṇṭakakāra* are found mentioned. The *Tāṇḍya Brāhmaṇa*[9] speaks of *Kirātas* who were and are non-Aryan and were aboriginal tribes. The *Vājasaneyī Saṁhitā*[10] and the *Taittirīya Brāhmaṇa*[11] speak of *Paulkasa* and of *Chāṇḍāla*. In the *Chhāndogya Upanishad*,[12] *Chāṇḍāla* has been shown the lowest in the social scale.[13]

1. *Chhāndogya Upanishad*, V. 3.
2. Ibid. V. II.
3. 35.3.
4. III. 5.6; III. 5.7.
5. IV. 5.4.2.
6. 16, 26-28.
7. 17.13.
8. III. 4.1.
9. 13.12.5.
10. 50.17; 30-21.
11. III. 4.14; III. 4.17.
12. V. 10.7.
13. *History of Dharmaśāstra*, pp. 43-44.

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ĀŚRAMA SYSTEM

The *Āśrama* system seems to have started first during the Later Vedic Period as it is found mentioned in the *Aitareya Brāhmaṇa* and also in the earliest *Upanishads*. Its stages were known even in the Early Vedic Period, but not the Āśrama system itself. Perhaps, the earliest reference to the four Āśramas, though somewhat obscure, occurs in the *Aitareya Brāhmaṇa*.[1] Here it is clear that '*Ajina* refers to *Brahmacharya*, *Śamaśruṇi* to *Vānaprastha* and '*Malam*' and *Tapas* must be taken respectively as indicating the householder and the *Saṁnyāsin* A much clearer reference to three *Āśramas* occurs in the *Chhāndogya Upanishad*.[2] There are three branches of *Dharma*, the first (is constituted by) sacrifice, study and charity (i.e. by the stage of householder, the second is constituted by the performance of *tapas* (i.e. the *Vānaprastha*), and the third is the *Brahmachārī* studying in the house of his teacher. Yājñavalkya in the *Bṛihadāraṇyaka Upanishad*[3] tells his wife Maitreyī that he was going into a life of *Pravrajyā*, from being a householder. In the time of earlier *Upanishads*, there were three *Āśramas*. No clear demarcation was noticed between the *Āśramas* of *Vānaprastha* and *Saṁnyāsa*, and they coalesced into each other.

In the *Jābālopanishad*[4], Yājñavalkya expounds the four *Āśramas*. After finishing the stage of student-hood, one should become a householder; after becoming a house-holder, one should become a forest-dweller, and after being a forest-dweller, one should renounce the world. Thus all the four *Āśramas* were known by their specific names to the *Jābālopanishad*. In the *Śvetáśvataropanishad*,[5] there is the word '*atyāśramibhyah*. It is said there that the sage Śvetāśvatara, who acquired knowledge of Brahma, proclaimed the knowledge to those who had risen above the mere observances of *Āśramas*.

FAMILY LIFE

In the Later Vedic Period, some instances of the curtailment in the rights of the father as well as the disintegration of the family are found. There are a few examples of the division of the property during the life time of the father. In the *Taittirīya Saṁhitā*[6], it has been told that Manu has divided the property among his sons. In the *Aitareya Brāhmaṇa*[7] version of the story, the sons are said to have made the division, leaving to Nābhānedishṭha only the care of their aged father. From the story of Abhipratāraṇa given in the *Jaiminīya Brāhmaṇa*[8], it is known that sons of Abhipratāraṇa began to divide the property themselves.

The different interpretations of the word '*Bhrātṛivya*' throw light on the disintegration of the family. The clear meaning of '*Bhrātṛivya*' is nephew (son of father's brother), but in the *Brāhmaṇas* such as *Śatapatha*[9] *Aitareya*[10] and *Pañcha-*

1. 33.11.
2. II. 23.1.
3. IV. 5.2.
4. 4.
5. VI. 21.
6. III. 1.9.4.
7. 22.9.
8. 3/156.
9. I. 1.1, 21.
10. III. 7.

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viṁśa[1] it was used even in the sense of the rival. There must have been the disputes of the inheritance in the joint family property because of the nephew's rival role, otherwise the word '*Bhrāṭrivya*' would not have been understood in this way. The stage of *Vānaprastha* in the Āśrama system also gave rise to occasion when the property was divided in the life time of father. A son wanted to be free from the father's individual absolute control, and was anxious to have his own earned income. The disintegration of the joint family became natural in the case when some members left the native place for earning their livelihood.

Inspite of a few instances of family disintegration, there was generally a joint family system. It was sometimes large enough to include the great grand father as well as great grandsons. Among relations are mentioned the wife's brother, the sister's son, the cousin, the maternal uncle, etc.[2] The mutual relationship among them was of great affection. The case of the sale of Śunaḥśepa by his father[3] indicating his absolute control seems to be only exceptional. Still a great emphasis was laid on hospitality because an entire hymn in the *Atharvaveda*[4] is devoted to the praise of hospitality, and the *Aitareya Brāhmaṇa* also lays stress on it. The quest offering is an integral part of the daily ritual of the household.

Marriage

During the Later Vedic Age, marriage was naturally regarded as normally necessary and desirable for all because *Āśrama* system, which started at this time, depended upon the householder for its maintenance. The marriage took place when the parties were fully grown up. As regards restrictions on marriage, it was banned within the circle of agnates, and cognates, but the *Śatapatha Brāhmaṇa*[5] allows marriages within the third or fourth degree on either side. Though marriage within the *gotra* was not explicitly prohibited, marriage outside the *gotra* must have been frequent. Monogamy was the normal form of marriage, but there are instances of polygamy specially among kings and nobles. The *Maitrāyaṇi Saṁhitā* mentions the ten wives of Manu. In the *Śatapatha Brāhmaṇa*,[6] the four wives—Mahishī (the chief wife), *Vāvatā* (the favourite one), *Parivṛiktī* (the neglected one) and the Pālāgalī (daughter of a court official) of the consecrated king are mentioned. The great philosopher Yājñavalkya had two wives Kātyāyani who was wordly minded and Maitreyī who thirsted for the knowledge of Brahmā and immorality.[7] Hariśchandra is said to have had a hundred wives.[8]

The remarriage of a widow was allowed, as noticed from the *Atharvaveda*.[9] The Inter-caste marriage was prevalent. The *Śatapatha Brāhmaṇa*[10] narrates the story of the old and decrepit sage Chyavana who was a Bhārgava or Aṅgirasa married to Sukanyā, the daughter of king Śaryāta, a descendant of Manu. The king married a Vaiśya girl, but her son would not have the Vedic coronation ceremony perform-

1. II. 7.2.12.13.2.
2. *TVA*, p. 449.
3. *Aitareya Brāhmaṇa*, VII, 12-18.
4. IX. 6.
5. 1.8 3.6.
6. XIII. 4.1.9.
7. *Brihadāraṇakya Upanishad*, IV. 5. 1-2.
8. *Aitareya Brāhmaṇa*, 33.1.
9. IX. 5; 27.28.
10. IV. 1.5.

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ed on him. In the *Yajurveda Saṁhitā*[1] is mentioned '*Ayogu*' who sprung from the union of a Śūdra male and a Vaiśya female. Chāṇḍāla is a *Pratiloma* caste sprung of a Śūdra from a Brāhmaṇa woman.

Position of Women

It is true that sometimes high praise is showered on woman. In the *Śatpaatha Brāhmaṇa*,[2] it is said that she is half her husband and completes him. Actually his position was not high in all respects. Now she was not employed to offer the oblations in certain religious ceremonies along with man. She was not allowed to take part in politics by attending the assembly like man. According to the *Aitareya Brāhmaṇa*,[3] a good woman is one who does not talk back. In this work,[4] a daughter has been described as a source of misery and a son alone can be the saviour of the family. The *Atharvaveda*[5] also deplores the birth of daughters. The *Śatapatha Brāhmaṇa*[6] says that women could not, however, inherit or own property. This deterioration of her status and dignity went so far as to result in woman being classed with dice and wine, as one of the three chief evils.[7] Judging from references in the *Taittirīya*[8] and *Kāṭhaka Saṁhitās*,[9] it appears clearly that woman, who held a high position in the age of the *Ṛigveda Saṁhitā*, had fallen on evil days in this age.

SLAVERY

Some passages of the literary works show that men and women had become the subjects of gifts, and so were in the condition of slaves during this age. The *Taittirīya Saṁhitā*[10] says, "*Dāsīs* (girl slaves) place on their heads jars full of water and singing this *madhu* and beating their feet against the ground dance round the *mārjālīya*. It also refers to the gift of a horse or a male (slave).[11] The *Aitareya Brāhmaṇa*[12] mentions large gifts such as 10,000 girls (*dāsī*) and 10,000 elephants made by a king to his *Purohita* performing coronation. In the *Chhāndogya Upanishad*,[13] there is mention of cows and horses, elephants and gold, wives and slaves, fields and houses as *mahimā* (greatness). It is possible that the *dāsas* vanquished in battle by the Aryans were taken prisoners, and they were also treated as slaves. They might have known debt-slavery and slavery as a result of defeat in gambling.

EDUCATION AND PROCESS OF KNOWLEDGE

This age is marked by the growth of literature related to the institution of sacrifice which became much elaborate. The necessity of preservation of the Vedic

1. 30.5.
2. V. 2.1.10.
3. II 1. 24.7.
4. VII. 15.
5. VI. 11.3.
6. IV. 4.2.13.
7. *Maitrāyaṇi Saṁhitā*, III. 6.3.
8. VI. 5.8.2.
9. *The Vedic Age*, p. 454.
10. VII. 5.10.
11. 11.2.6.3.
12. 39.8.
13. VII. 24.2.

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literature also known as *Śruti* or revealed, was felt. It formed the chief subject of instruction and the vital part of education. The instruction was orally given by the student who was called a *Brahmachārin*. Vedic study, service to teacher and chastity were the principal duties of a *Brahmachārin*. The *Śatapatha Brāhmaṇa*[1] gives a detailed description of the *Upanayana* as a sacrament (*Saṁsakāra*). In the *Atharvaveda*, it was understood in the sense of taking charge of a student by the teacher.

There was progress of knowledge in different spheres. The systematic and intensive study of Vedic texts and the practical needs of religion in due course resulted in the growth of such sciences as *Vyākaraṇa* (Grammar), *Śikshā* (Phonetics), *Kalpa* (Ritual), *Nirukta* (Etymology), *Chhandas* (Metrics) and *Jyotisha* (Astronomy). These *Vedāṅgas* or "Limbs of the *Veda*" aim at "explaining, preserving or practically applying the sacred texts". In this group, the most interesting works are those dealing with sacrificial aspects, or with phonetics, derivation and grammar. The *Nirukta* of 'Yāska, which, apart from its value for exegesis and Grammar, is "the earliest specimen of sanskrit prose of the classical type". It was thus another development of the period that of the several dialects arising out of the old Vedic speech of the Punjab, the one current in Madhyadeśa assumed pre-eminence and became the standard vehicle of expression. It was styled sanskrit, 'polished', in contradistinction to the common vernaculars called Prākṛits.

Besides Vedic thinkers, there were *Śramaṇas* who were great scholars. They might have composed the works because their views on important topics of their times are known from other sources. According to Jaina tradition, the sacred literature descending from the time of Pārśva was known as *Puvvās* (*Pūrvas*).

There was no system of any state education. The age of specialisation somehow started, and for it, students had to visit special teachers who taught them at their houses, giving them free board and lodging. In return, the pupils served the teacher and gave him fees (*Gurudakshiṇā*). The important feature of education was that there were numerous Vedic schools in the form of *Saṁhitā* and *Brāhmaṇa Charanas* scattered all over the country, and each was managed by a celebrated Vedic teacher. On the basis of Later *Saṁhitās*, *Brāhmaṇas*, *Āraṇyakas* and *Upanishads*, R.B. PANDEY[2] tried to prove that there was a system of writing.

AMUSEMENTS AND ENTERTAINMENTS

Music, both vocal and instrument, and dancing were means of amusements of the people. The *Sāmaveda* is a living monument proving the skill and originality of the ancients in the science of vocal music. Several professional musicians such as lute-players, flute-players, conch-blowers, drummers etc. are known. Among the musical instruments, the important were *Āghāṭi* (cymbal) to accompany dancing, drums, flutes, and lutes of various types, and the harp or lyre with a hundred strings.

Racing and gambling became so much popular sources of entertainment that they were even elevated to the rank of religious ceremonies. The essential part of

1. XI. 3.3.1-7.

2. *Indian Palaeography.*

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the *Vājapeya* ceremony is a chariot race, in which the sacrificer is made victorious. Horse-racing was a favourite amusement. A formal race is also a feature of the *Rājasūya* ritual. Dicing was another popular amusement. The number of dice, the method of dice-playing, and the names of the throws are all described in detail in various texts of this period. A ritual game of dice is played at the *Agnādhyeya* and the *Rājasūya* sacrifices.

FOOD AND DRINK

Various articles of food are mentioned in the texts of this period. The *Apūpa* is a cake mixed with *ghee* made of rice or barley. *Odana* is a mess, generally of grain cooked with milk. "*Tilaudana Karambha* and *Yavāgū* as special varieties of food, were also known. Rice cooked with milk and with beans was prevalent. Fried grains of rice were known.

Generally meat was eaten on the occasion of religious ceremony and the visit af guest. The normal meat-diet consisted of the flesh of the sheep, the goat and the ox. What man ate, he offered to the gods. It's use was forbidden during the observance of a cow. It seems that killing of cows gradually came into disfavour.

The different products and mixtures of milk shows its great popularity. Among the chief products were clotted curds (*Āmikshā*), sour milk (*Dadhi*), fresh butter (*Navanīta*), *Payasyä*, *Phāṇtā*, *Vājina*, etc.

The texts of this period inform about different varieties of drinks used by the people. *Surā*, an intoxicating spiritous liquor is often mentioned. The *Yajurveda Saṁhitā* mentions a beverage called *Māsura*. When *Soma* was not available, its substitute *Arjunāni* was used. There were taboos against the use of *Madhu* (honey) by students and women under certain circumstances.

DRESS AND ORNAMENTS

The literary works give an idea about the dress and ornaments of this period. The usual dress seems to have consisted of three garments—an under-garment (*Nīvi*), garment proper (*Vāsas*), and an over-garment (*Adhi-vāsas*). The *Śatapatha Brāhmaṇa* describes the set of sacrificial garments as consisting of a silk under-garment (*tārpya*), a garment of undyed wool, an over garment and a turban *ushṇīsha*). The turban was worn by men as well as by women. A royal head-gear or turban is worn at the *Rājasūya* and *Vājapeya* ceremonies by the king. The '*Sandal*' or 'shoe' was made of bear skin. The frequent use of the variant terms for '*warp*' and 'woof' shows the great developmet of art of weaving garment. Clothes were generally woven by sheep's wool. Skins were also used as clothing. The main ornaments known are *Pravarta* (ear-ring), *Nīshka* (Necklace), *Stāgara*, *Vimuktā* (Pearl), *Maṇi* (Jewel) and *Prākāśa*.

KNOWLEDGE OF MEDICINE

The profession of the Physician had already become well established, but it was not held in high esteem. In some *Saṁhitā* and *Brāhmaṇa* texts, the Aśvins are

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looked down upon because as physicians they have to mix too freely with men. The *Atharvaveda* enumerates quite a large variety of diseases such as *Takman* (a kind of fever), consumption, scrofula, dysentery, boils, swellings, convulsions, ulcers, rheumatism, headache, jaundice, cramps, eye-diseases, senility, fractures and wounds, bites of snakes and other harmful insects, poison in general, lunacy, and leprosy. Demons were also supposed to cause them. The treatment as suggested consisted of the use of herbs in combination with spells. The use of sandbags to stop bleeding is interesting. Their knowledge of pathology was elementary. The practice of dissecting animals at the sacrifice was a great help to the knowledge of anatomy which developed to an appreciable extent.[1]

ECONOMIC CONDITIONS

During the Later Vedic Period, a great progress was made in agricultural and pastoral pursuits. Even more striking is the great development in industrial life and the subdivision of occupations. There was more extended knowledge of metal. The noteworthy feature is the wide spread of the use of iron which laid the foundation of material civilization. Because of the coming into existence of different crafts and industries, trade and commerce flourished. Ingots of gold and other metals of recognized weight began to be used as means of exchange.

AGRICULTURE AND CATTLES

During this period, great progress in agriculture was made. The quality and size of the plough (*Sīra*) was improved; and the use of manure was well understood for increasing production. The ploughs were so large and heavy that six, eight, twelve and even twenty four oxen were used to drag them. The *Śatapatha Brāhmaṇa* describes the various stages of agriculture as—ploughing, sowing, reaping and threshing. The ripe grain was cut with a sickle. In addition to barley (*yava*), several other kinds of grain like rice (*Vrīhi*), wheat (*Godhūma*), beans, and sesamum (*Tila*) were cultivated in their due seasons. The seasons of the different grains are briefly summed up in the *Taittirīya Saṁhitā*; barley sown in winter and ripened in summer; rice sown in the rains and ripened in autumn; beans and sesamum planted in the time of the summer rains, ripened in the winter and the cold season. The farmer was watchful of the constant troubles such as—moles destroyed the seed, bird and other creatures injured the young shoots; and both drought and excessive rain were to be feared. The *Atharvaveda* provides considerable number of spells to prevent these troubles.

Cattles were carefully looked after. Pasture-lands were maintained, and large sheds or stalls were erected for accommodating cattle. Draft oxen were generally castrated. Female draft-cattle also were used. Reverence was shown towards the cow, and the death penalty was prescribed for cow-killing outside the sacrificial enclosure. Horse was used for riding and pulling chariots. The noteworthy feature of this age is the definite reference to the keeping of tame elephants.

1. *TVA*, p. 459; *CHI*, pp. 123-124.

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OCCUPATIONS

The fertile plains of Northern India increased the material prosperity of the Aryans, and this gave rise to a variety of occupations to meet the needs of the people. A very comprehensive list of the professions, occupations, arts, crafts and industries of this period is to be found in the *Vājasaneyī Saṁhita*[1] and *Taittirīya Brāhmaṇa*.[2] There were charioteers, hunters, shepherds, fishermen, fire-rangers, ploughers, chariot-makers, jewel-workers, basket-makers, washermen, rope-makers, dyers, weavers, slaughterers, cooks, potters, smiths, professional acrobats, musicians, guards of tame elephants, astrologers, barbers, physicians and so on. Women mostly engaged themselves in dyeing, embroidery, basket-making, etc.

METALS

The advance of civilization is noticed in the more extended knowledge of the metals as compared with the gold and *Ayas*, of some doubtful meaning of the *Ṛigveda*. This period knows of lead (*Sīsa*) tin (*Trapu*), Silver *Rajata*), gold (*Hiraṇya*), red (*Lohita*) *Ayas* (copper) and dark (*Śyāma*) *Ayas* (iron). Gold and silver were mostly used for making ornaments, bowls, vessels, etc. Gold was either obtained from river beds, or from the bowels of the earth or from ore by smelting.

It seems that iron was known to the people in the Rigvedic time. It became common gradually, and it seems towards eigth or seventh century B.C., its use became really wide spread. Iron ores were available in much greater quantities than copper and bronze. Copper and bronze were mainly used in the manufacture of articles of luxury and arms. With the use of iron, many kinds of tools like the plough-share, the knife, the hammer, the sickle, etc. began to be manufactured in large quantities. The iron axe led to the clearing of the forests which were regarded impenetrable. The plough-share facilitated the breaking up of the hardest soil. Consequently, the practice of agriculture spread over a vast area. The use of iron laid the foundation of material civilization.

TRADE AND COMMERCE

The surplus of agricultural products, as well the large quantity of finished goods because of development of crafts and industries led to the development of trade and commerce. *Vaiśyas* (*Śreshthins*) carried on trade and commerce. The haggling of the market had now become such a pronounced feature of commerce that a whole hymn of *Atharvaveda*[3] aims at procuring success in trade through clever bargaining. Garments, coverlets, and goatskins are among the articles of commerce and market commodities. There was probably some amount of sea-borne trade. Money lending business was practised by some people. *Kusīdin* is a designation of the usurer in the *Śatapatha Brāhmaṇa* and *Kusīda* had the sense of a 'loan' in the *Taittirīva Saṁhitā*.

1. XXX.
2. III. 4.
3. III. 15.

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MEANS OF EXCHANGE

The barter system still continued as of the earlier period, and cows and grains were generally used as means of exchange in ordinary transactions. Besides there seems to be ingots of gold and other metals of calculated weight. Generally, they have been mentioned in connecton with gifts. In the *Śatapatha Brāhmaṇa*, a gold piece named *Śatamāna* is frequently mentioned in connection with the honorarium to be paid to the priests. In the ceremony of *Rājasūya* sacrifice at the time of the royal coronation, two *Śatamānas* attached to the two wheels of the royal chariot which were offered as *dakshiṇā* to the officiating priest. In two passages of *Śatapatha Brāhmaṇa*, another class of coins named *suvarna* has also been mentioned. The *Bṛihadāraṇyaka Upanishad* mentions '*Pada*' in the concern of *Bahudakshiṇa* sacrifice performed by king Janaka. He organized a philosophical tournament offering a most tempting prize to the winner which consisted of a thousand cows, each having ten *padas* attached to its horns.

RELIGION

The development of religion and philosophy in the Later Vedic Period was remarkable. The divine origin and the divine authority of the *Vedas* was accepted without question. The religion was concerned more with external formalities than inner realities. It took the form of magic, sorcery and witchcraft. Rudra and Vishṇu became popular deities of worship. There was too much emphasis on rituals and sacrifices. This type of excessive ritualism produced a natural reaction in the form of *Śramaṇa* religion, which protested against the divine origin of the *Vedas* and efficacy of the sacrifices, and it emphasized on the observance of moral precepts. The origin of *Śramaṇa* religion seems to have influenced the authors of the *Āraṇyakas* and the *Upanishads* who turned away from the useless rituals to true knowledge (*Jñāna*) for peace and salvation.

WORSHIP OF RUDRA AND VISHNU

During this period some deities of the *Rigveda* reappeared, but there was a change in their emphasis. Prajāpati, the lord of creatures, who was the main of Brahmanic speculation, did not, however, attain the position of popular god. Contrary, Rudra won the most prominent place in the Vedic pantheon. He was called the 'great god', and he already bore the epitheet 'Śiva'; propitious. The position of Rudra as a popular deity is sufficiently shown by the litanies to him in the *Saṁhitās* of the *Yajurveda* and by the whole outlook of such texts as the *Aitareya*, *Kaushītaki*, and the *Śatapatha Brāhmaṇas*. When Prajāpati committed incest with his daughter, the *Aitareya* tells us that the gods were angry and from their most dread forms produced the god Bhūpati, 'Lord of Creatures' who represents one aspect of Rudra's activities. He pierced Prajāpati and thereby acquired his dominion over all cattle. He appears at the sacrifice in black raiment and claims the sacrificial victim. This Rudra is (in all probability) not merely a development of the Rigvedic Rūdra, but an adaptation of him by amalgamation with a popular god, an aboriginal god of vegetation, closely connected with pastoral

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life. He is thus the "great god' (*Mahādeva*) and has already received the appellation 'Śiva' (the Auspicious one) which became later his chief name.

Next to Rudra comes Vishṇu who in the *Ṛigveda* was a mere form of the Sun god. He was constantly identified with the all important sacrifice and therefore rose to a high position. Probably he was prominent enough to claim the Undivided allegiance of some localities while Rudra was worshipped in others. Nārāyana and Vishṇu are brought into relation in the *Taittirīya Āraṇyaka.*

Besides, there was worship of other gods. Gandharvas, Apsarās, Nāgas, etc. were raised to a semi-divine rank. Snake-worship (probably borrowed from the aborigines) and the mechanical motif of the 'Devāsura' battles make their appearance now.

RITUALS AND SACRIFICES

The main feature of the religion of this age is that it assumed to form of rituals and sacrifices. In addition to the simplest form of *Soma* sacrifice, grand sacrifices called *Sattras* were performed. These might last up to any time from twelve days to a year or years. Sometimes these were performed to please the gods and profit men. These grand sacrifices were elaborately developed and systematized, and for this, a regular science of sacrifice has now been evolved. The highly elaborate nature of the sacrificial ceremonies demanded special training for the priestly office. Priesthood became a profession and an hereditary one. The priests, who possessed the Vedic love, became accredited intermediaries between gods and men and the dispensers of the divine grace. The *Yajamāna* (sacrificer) had practically nothing to do but to give liberal fees to these priests.

A formidable array of priests, divided into four groups headed by four chief priests, was required for the correct performance of the extremely complicated ritual and elaborate ceremonial which were the *sine qua non* of the grand sacrifices. Three sacred fires instead of one were necessary for these grand sacrifices, and altars for these were erected on a vast sacrificial place set up according to rules and to the accompaniment of an elaborate ritual.

Some grand sacrifices performed during this age are known to us. Thus the *Rājasūya* or Royal consecration was fundamentally a popular rite for the anointing of the king; the *Vājapeya* is characterized by a chariot race which must have been originally the main element, was popular with the people; the *Gavāmayana*, a *Sattra* lasting a year, is distinguished by the ritual of the *Mahāvrata*, which is probably a reminiscence of a very popular primitive celebration of the winter solstice, plays a notable part in the *Gavāmayana*, the year-long *Sattra.* The horse sacrifice is at bottom the elaboration of a simple rite of sympathetic magic but it has been so elaborated as to combine everything which could make an appeal to the warrior Indian king and induce him to distribute abundant largesse on the celebrators. Above all, however, the building of the altar for the sacred fire is the one rite which, though a simple one in ancient times, has been so worked out by the priests, that it reflects in a mystic sense almost a new conception of the unity of the universe and the mode of its preservation. The *Brāhmaṇas* record, as an ancient practice no longer current, the slaying of a man during the building rite in order to secure the

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permanence of the structure. The only plausible explanation of the disproportionate importance and treatment claimed by this rite is the one given by EGGELING[1] that the building of the fire altar symbolizes the reconstruction of the universe in the shape of Prajāpati.[2]

ŚRAMAṆA RELIGION

Against the rituals, sacrifices and other practices of the Vedic religion, a revolt in the form of *Śramaṇa* religion arose. These *Śramaṇas* were recruited from all people irrespective of castes and creeds. Their teachers were anti-Vedic and anti-Brahmanic, and they challanged Vedic learning and Vedic rituals. They viewed the Vedic study in the light of ignorance (*Avidyā*). They estimated the *Vedas* as lower knowledge. They questioned the divine origin of the *Vedas*, all efficacy of the sacrifices, funeral oblations and gifts to the priesthood enjoined in the *Vedas*.[3] They laid emphasis on right actions rather than birth.

Yājñavalkya is known to be the first thinker to have called attention to *Śramaṇas* (recluses or *religieux*). These were also known as *Titthiyas* or *Tīrthaṅkaras*.[4] In a passage of the *Śatapatha Brāhmaṇa*, it is alleged that Śvetaketu was a contemporary of Yājñavalkya.[5] The *Taittirīya Āraṇyaka*[6] speaks of '*Śramaṇas* who were called *Vātaraśanāh*. They led a celibate life, and could disappear at will and teach the Brāhmaṇas the way of righteousness. The word '*Śramaṇa*' occurs in the Upanishads,[7] although the *Muṇḍakopanishad* has various references to the shaven headed ascetics who revile the *Vedas*. Besides the School of thinkers called Kāvasheyas, Pratardana and Mahidāsa are known to have revolted against the Vedic modes of learning and sacrifices.[8]

These *Śramṇa* teachers are known also from other sources. The twenty third Jaina *Tīrthaṅkara*. Pārśvanātha regarded as historical personage, was born in 877 B.C., and attained *Nirvāṇa* (liberation) in 777 B.C. He was merely an ascetic of the ancient hermit type. He enjoined on his followers known Nirgranthas Four Great Vows—(1) Abstinence from killing living beings; (2) Avoidance of falsehood; (3) Avoidance of theft and (4) Freedom from possession.[9] Even the Ājivikas were known as *Śramaṇas*. Before Gośāla, there were two previous Ājivika leaders namely, Nandavachchha and Kisasaṅkichchha, regarded also as *Tīrthaṅkaras*.[10] The religion of the Ājivikas resembles more or less that of the Nirgranthas.

RELIGION OF THE ĀRAṆYAKAS AND THE UPANISHADS

This religion *Śramaṇa* movement seems to have opened the eyes of some of the Vedic thinkers who felt the great necessity of reforming the Vedic religion. They adopted the good points of the *Śramaṇa* religion, and at the same time tried to

1. SBE, XLIII, pp. xv-xxiv.
2. *CHI*, pp. 126-130.
3. *A History of Pre-Buddhist Indian Philosophy* p. 193.
4. Ibid., p. 189.
5. *History of Ancient Sanskrit Literature*, 193.
6. 6. I. pp. 87, 137-8.
7. *Bṛihadāraṇyaka Upanishad*, 4.3.22.
8. *A History of Pre-Buddhistic Indian Philosophy*, p. 194.
9. *Lord Mahāvīra and His Times*, pp. 12-13.
10. *Ibid.*, p. 5. f.n.1.

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remove the evils of sacrifiees, rituals, casteism, etc. from the Vedic religion. This reformed Vedic religion is known from the *Āranyakas* and the *Upanishads.*

The *Āraṇyakas* stressed the efficacy of the inner or mental sacrifice as distinguished from the outer or formal sacrifice, consisting of oblations of rice, barley or milk. They thus helped to bridge the gulf between the 'way of works' (*Karmamārga*) which was the sole concern of the Brāhmaṇas and the 'way of knowledge' (*Jañānamārga*) which the *Upanishads* advocated. The *Āraṇyakas* further lay down *Upāsanās* (Courses of meditation upon certain symbols and austerities for the realization of the Absolute, which by now had surpassed the 'heaven' of the Brāhmaṇa works, as the highest goal of the devout. These symbols form the link between the *Brāhmaṇas* and the *Upanishads* as they are borrowed from the sacrifices. Finally the compromise between the two 'ways' of *Karman* and *Jñāna* was consumated when *Karman* was made subsidiary to, and a prepatory stages for *Jñāna* in the *Āraṇyakas* and the *Upanishads.*[1]

The quintessence of Upanishad religion may be summed up in one sentence— "The universe is *Brahman* but the *Brahman* is the *Ātman.*" Ajātaśatru explains to Gārgya Bālāki that the true Brahman is to be sought only in the knowing and and intelligent spirit (*Purusha*) in man i.e. in the *Ātman* (the self) out of which emanate all worlds, all gods and all beings. The *Ātman* thus takes the place of the more personal Prajāpati as a creative power. The beautiful dialogue between Yājñavalkya and Maitreyī[2] expresses the doctrine that *Ātman* is one with universe and that everything exists only in so far as it is the cognitive self. The *Bṛihadāraṇyaka Upanishad*[3] in a passage tells the fortunes of the soul and incidentally develops the doctrine of the transmigration of souls, and in close connection with it, the ethical doctrine of *Karman* (action) which, with thc infallibility of a law of nature, must produce its consequences (its reactions on the ethical plane must be equal and opposite) and regulate the new birth, which this depends on a man's deeds and makes man truly an architect of his own fate.[4]

Thus striving restlessly to solve the riddle of the universe and to grasp the nature of the self, the authors of the *Upanishads* enunciated the great doctrine that ultimate reality was one, *Brahman.* True knowledge alone led to infinite bliss by the absorption of the individual *Ātman* in the world *Ātman.* The natural corollary of this doctrine was the theory of the transmigranation, and the belief gained ground that until release was obtained by *Jñāna*, the soul remained a prey to endless births and deaths. These were regulated by one's own deeds—an idea, which marks the beginning of the doctrine of *Karma*, i.e., no act, good or bad, is ever lost, and it must bear its proper fruit in the cycle of existence.

1. *TVA*, pp. 447-448.
2. *Bṛihadāraṇyaka Upanishad*, II.4.
3. IV.3.4.
4. *TVA*, pp. 493-497.

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CHAPTER XVI

TRADITIONAL HISTORY OF INDIA

The history of India before the sixth century B.C., based generally on traditions preserved in the *Purāṇas*, is called traditional. These *Purāṇas* describe genealogies of the rulers of different dynasties. The *Mahābhārata* and the *Rāmāyaṇa* also occasionally give dynastic lists and deal with traditional accounts. For the purpose of reconstructing the correct genealogies, the texts of the *Purāṇas*, that generally agree, have been collated. Attempts have been made to establish synchronisms co-ordinating the kings of different dynasties about whom there are copious and clear statements. Further attempt has been made to check and confirm traditional history by the evidence of *Vedas* and that of *Zend Avesta*. Scholars sometimes differ in reconstructing the traditional history by giving peculiar interpretations of these sources.

The Bhārata war is known to be the central landmark in this traditional history because the fixing of its date gives help in determining the dates of rulers who lived prior and subsequent to it. The traditions preserved about the date of this war are not generally agreed. From the Aihole inscription (seventh century A.D.) of Pulakeśin II, it can be inferred that Bhārata war took place in 3102 B.C. This date is the starting point of the *Kaliyuga* era according to the astronomical data preserved by Āryabhaṭa in his work. Vṛiddha Garga, Varāhamihira and Kalhaṇa place the war 653 years after the *Kaliyuga* era i.e. in 2449 B.C. Astronomical references in the *Mahābhārata* itself about the position of the *Nakshatras* and planets have been utilised for determining the date of the war. As a matter of fact, the statements in the epics are often conflicting and self-contradictory, and so no satisfactory and acceptable result can be arrived at from these data.

F.E. PARGITER,[1] on the basis of the Puranic tradition, places the Bhārata war in 950 B.C. According to him, twenty-six reigns intervened between Adhisīmakṛishṇa (great grandson of Janamejaya) and the accession of Mahāpadmananda. Allowing a period of 18 years per reign and taking the accession of Mahāpadmananda in 382 B.C., the period of Adhisīmakṛishṇa would be $26 \times 18 + 382 = 850$ B.C. Adding a period of hundred years for the reign of intermediate kings between Yudhishṭhira and Adhisīmakṛishṇa, F.E. PARGITER arrives $(850 + 100) = 950$ B.C. as the date of the Bhārata war. This view of F.E. PARGITER is contradicted by another statement

1. *AIHI*, p. 182.

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in the *Purāṇas* and the *Mahābhārata* that there elapsed a period of 1015 years between the birth of Parīkshit and the accession of Mahāpadmananda. This brings the date of the Bhārata war (1015+382) =1397 or 1400 B.C. According to S.N. PRADHAN,[1] 1150 B.C. is the most probable date of the *Mahābhārata*.

MANU VAIVASVATA

On the basis of traditional account, Manu Vaivasvata seems to have lived 95 generations before the Bhārata war. Taking one generation to average eighteen years, his time can be fixed as (95×18+1400) =3100 B.C. This date viz. 3100 B.C. is curiously nearer to 3102 B.C. which has been taken as the beginning of the hypothetical Kali Age on the basis of astronomical traditions. It also stands for the date of the Great Flood recorded in the *Śatapatha Brāhmaṇa* and other later works, at which Manu was the saviour of the humanity. Not only in India, the flood legends have been described in Hebrew and Babylonian accounts. The flood in Mesopotamia is generally held to have occurred about 3100 B.C. Thus the date 3102 signifies some important and epoch making event in the traditional history of India.

It is known from the *Purāṇas* that Manu Vaivasvata was preceded by six other Manus, all of them belonging to the pre-flood period. All these previous Manus belonged to one and the same family as they had directly descended from the first Manu named Manu Svāyaṁbhava. On the bases of the extracts from the Iranian *Zend-Avesta* and the *Brāhmaṇas*, D.P. MISRA[2] has tried to prove that Vedic Manu and Yama (Avestic Yima) were brothers, and they lived originally in Khvarizm, now a part of the Soviet Republic of Uzbekistan. All the ancient literature of India regard Manu as the first Aryan King of India and all the dynasties mentioned in the *Purāṇas* are known to have sprung from him. The *Purāṇas* place the capital of Manu in Ayodhya, the most ancient city of Kośala. P.L. BHARGAVA[3] tried to place the Mānavas in the vicinity of the river Indus on the ground that when later settled in Kośala, they carried the names of the river Gomati and Saryu from this region. D.P. MISRA[4] thinks that the region in India first occupied either by Manu or his descendants was Brahmavarta which is said to be created by the gods. It lies at the foot of the Himalayas. It also happens to be the doorway between the valleys of the Indus and the Ganges. Manu may be the representative of Indra, king of the Vedic Aryans, left behind to govern the conquered territories at the time of their expansion.

Manu, the first Aryan ruler of India, is said to have framed rules and laws of government, and collected a sixth of the produce of land as a tax to meet administrative expenses. He is stated to have been the father of ten sons viz. Sudyumna, Ikshvāku, Prāṁśu, Śaryāti, Dhrishṭa, Karūsha, Narishyanta, Pṛishadhra, Nābhāga, and Nābhāgodisṭa. His daughter's name was Ilā who is absurdly said to have been the female form of Sudyumna. Out of these sons ascribed to Manu, only

1. *COAI*, p. 286.
2. *SIIPHOI*, pp. 26-59; p. 110.
3. *HIVA*, pp. 131-132.
4. *SIIPHOI*, pp. 115.

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four viz. Sudyumna, Ikshvāku, Prāṁśu, and Śaryāti were kings or founders of royal dynasties. According to P.L. BHARGAVA,[1] of the rest four viz. Dhṛishṭa, Karūsha, Narishyanta and Pṛishadhra are mere names and seem to have been included in the list to make up the number ten. These four kings namely Ikshvāku, Prāṁśu, Sudyumna and Sāryata founded the earliest kingdoms. The Puranic editors have located the capitals of Ikshvāku and Sudyumna at Ayodhyā and Pratishṭhāna respectively. P.L. BHARGAVA[2] suggested their locations as follows. The kingdom of Ikshvāku was situated on the western bank of Sindhu (near modern Dera Ismail Khan) and may have stretched towards the north and the east also though its exact limits are not known. Prāṁśu's kingdom was in all probability to the east of Ikshvāku's kingdom. The kingdom of Sudyumna lay further in the east, and stretched up to the banks of the Sarasvatī. Beyond the river Sarasvatī lay the kingdom of Sāryāta. Narishyanta, one of the sons of Manu, is mentioned in the *Purāṇas* as the progenitor of the Śakas. According to D.P. MISRA,[3] this would place their home in some region of Iran.

CHRONOLOGICAL SCHEME OF TRADITIONAL HISTORY

A.D. PUSALKAR[4] reconstructs the chronological scheme of traditional history according to the *Purāṇas* as follows. Yayāti, who is fifth in descent from Manu, flourished $(18 \times 5) = 90$ years after Manu or in $(3100\text{-}90) = 3010$ B.C. Māndhātri, coming after twenty generaritons, has to be placed in $(3100\text{-}20 \times 18) = 2740$ B.C. The period of Arjuna Kārtavīrya, Viśvāmitra, Jamadagni, Paraśurāma and Hariśchandra can be put between $(3100\text{-}31 \times 18) = 2542$ B.C. and $(3100\text{-}33 \times 18) = 2506$ B.C. or roughly between 2550 and 2500 B.C. Sagara of Ayodhyā and, Dushyanta and Bharata of Hastināpura flourished between $(3100\text{-}41 \times 18) = 2362$ B.C. and 2308 B.C. Rāma flourished 65 generations after Manu, i.e. in $(3100\text{-}65 \times 18) = 1930$ B.C. or roughly in 1950 B.C. and the famous *Dāśarājña* war, which occurred about three or four generations after Rāma, happened in 1900 B.C. These dates will, of course, have to be lowered by 400 years if the Bhārata War is placed in 1000 B.C.

S.N. PRADHAN'S[5] view that the Vedic king Divodāsa and Daśaratha were contemporaries and they lived in about 1500 B.C. As Mudgala belongs to the second step above Divodāsa, he may be placed in about 1550 B.C. Sudās, who participated in the battle of ten kings of Rigvedic Age, belongs to a step below Divodāsa. He may be dated at about 1470 B.C. P.L. BHARGAVA[6] observes that the Ikshvākus and the Purus (latter called Bhāratas) dominated the political and cultural stage by turns, until the 23rd Century B.C. when king Divodāsa of Tritsus ruling at Kāśī and his son Sudās defeated the confederacy of the ten kings on the Parushṇī (Ravi). Rāma Dāśarathī ruled in 1600 B.C. Kuru, also known as Parīkshit (I), ruled at Hastināpura (Āsandivat) in 1300 B.C. and the Bhārata War was fought

1. *IITVA*, p. 90.
2. *Ibid.*, p. 216.
3. *SITPHOI*, p. 116.
4. *TVA*, p. 270.
5. *COAI*, p. 175.
6. *IITVA*, pp. 209-234.

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some 300 years later in about 1000 B.C. According to D.P. MISRA,[1] at least three Aryan invasions are discernible. The date of the entry of the Early Aryans consisting of Solar and Lunar branches was fixed round about 2150 B.C. The possible date of the arrival of the Bhāratas may be fixed 1750 B.C. The third invasion was led by Kurus, a separate branch from the Bhāratas.

THE YAYĀTI PERIOD (3000-2750 B.C.)

THE LUNAR DYNASTY

Purūravas Aila, Ila's son through Budha or Soma (Sudyaumna's son) was the progenitor of the celebrated Lunar dynasty. He was the contemporary of Ikshvāku of the Solar dynasty. F.E. PARGITER[2] makes Purūravas the ruler of Pratishṭhāna and then traces the Aila expansion towards the north in the Upper Ganga Valley. He also held that the Aila expansion took place from east to West. He was misled by the Puranic error into the belief that the initial capital of Pururavas was at Pratishṭhāna near Allahabad. The fact is that the word Pratishṭhāna merely means a settlement and there could be many Pratishṭhānas. D.P. MISRA[3] suggests that there could have been one Pratishṭhāna near Bactria; the home province of Pururavas. This is possible because the initial capital of Pururavas cannot have been far from Boctria, because of his close connections with Indra and the *Devaloka*. This *Devaloka* has been identified with the region of Pamir Mountain comprising the vast tract extending from the river Oxus to the Arctic Ocean. Purūravas was succeeded by Āyu who in turn by Nahusha.

The son and successor of Nahusha was Yayāti. He is also referred to in the *Ṛigveda* which mentions that Sarasvatī granted milk and ghee to him. P.L. BHARGAVA[4] interprets this reference in the sense that his kingdom was situated on the banks of the river Sarasvatī. To D.P. MISRA,[5] it appears that Yayāti drove out the remnant of Mānavas from Arachosia and occupied the valley of Harahvaiti or Arghandab. He was a great conqueror who extended his kingdom in the east up to Yamunā, for he is said to have performed sacrifices on its banks. In the west also, he extended his territory because he seems to have annexed some part of the Prāṁśava Kingdom.

Yayāti married two wives, Devayānī, the daughter of a Brāhmaṇa Uśanas—Śukra and Śarmishṭhā, the daughter of a Kshatriya king Vṛishparvā. His former wife bore two sons, Yadu and Turvaśa and the latter one three sons Druhyu, Anu and Pūru. He divided the kingdom among his five sons, placing the youngest son Pūru to continue the main line over Pratishṭhāna. Yadu ruled over the country of the rivers Chambal, Betwa and Ken; Turvasu got the territory round Rewah; Druhyu was assigned the country west of the Yamunā and north of the Chambal and Anu received the northern portion of the Gangas-Jumna Doab.[7] P.L. BHARGAVA[6] is of the view that Pūru continued to rule over the ancestral region on

1. *SITPHOI*, p. 133.
2. *AIHT*, p. 258.
3. *SITPHOI*, p. 117.
4. *IITVA*, 211.
5. *SITPHOI*, p. 118.
6. *AIHT*, p. 259.
7. *IITVA*, pp. 211-212.

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the banks of the Sarasvatī; Yadu appears to have got the territory in the south-west of the Punjab; Druhyu apparently got territory to the north-west of the Punjab and Anu got territory to the north of the Sarasvatī region.

D.P. Misra[1] suggests that Vṛishparvā, who married his daughter Śarmishṭhā to Yayāti, was the Asura king of the cities of Mohenjodaro and Harappa. Yayāti's kingdom bordered on that of Vṛishparvā, and he conquered Indus Valley more by compromise than blood conquest. It appears that Yayāti, with a view to appeasing the Asuras of the Indus Valley, entrusted to the care of Pūru, born of an Asura mother, his newly conquered territories. Druhyu and Anu, the two other sons born of Asura mother Śarmishṭhā, may have received parts of north-western Punjab to rule as feudatories under Pūru. Yadu and Turvasu, sons of the Brāhmin mother Devayānī, were kept out of the valley of the Indus and were allotted regions west of the Indus in Iran, perhaps in Sistan and Kandhar. The descendants of Yayāti's five sons later became the five tribes named after them. The repeated references in the *Ṛigveda* to Yadu, Turvasu, Druhyu, Anu and Pūru do not signify the sons of Yayāti but their descendants. It is not Turvasu and Yadu but their descendants were brought to India by Indra. It would, therefore, appear that while some clans of the Turvasus entered India, those who were left behind came to be known as Yavanas.

THE SOLAR DYNASTY

According to the *Purāṇas*, Ikshvāku had a hundred sons of whom Vikukshi, the eldest, Nimi and Daṇḍa were most famous. Vikukshi succeeded Ikshvāku in the Ayodhyā Kingdom, and Nimi founded the Videha line. The Daṇḍaka forest is said to have been named after Daṇḍa.[2] D.P. Misra[3] is of the opinion that Vikukshi had many sons some of whom are said to have been rulers of regions north of Meru *i.e.* in Central Asia while the rest of his sons became rulers of regions in India. Thus Vikukshi's sons had definitely settled in India. Perhaps, the first settler was Vikukshi's son and successor Kākutstha who is said to have assisted Indra in one of the *Devāsura* wars, named Āḍīvaka by the *Purāṇas*. It may be that as a result of Indra's success in this war Kākutstha received territories in India and became the first Aryan ruler somewhere on the east of the Indus. This view is somehow supported by the *Purāṇas* which mention that the descendants of Manu came to be called Kākutsthas after him.

Kuvalayavāśva, who lived some five generations after Yayāti, received the alternative name Dhundhumāra because he is said to have marched against an Asura named Dhundhu near a shallow sand filled sea in the Rajasthan desert in order to rescue a sage named Uttaṅka. This suggests that Kuvalāśva subjugated the Asuras and aboriginals in the west and in the southern parts of Rajasthan. This does not seem to have been an act of conquest but a mere raid for a specific purpose. Kuvalāśva's eighth desendant was known as Yavanāśva II.[4]

1. *SITPHOI*, pp. 118-125.
2. *AIHT*, pp. 257-258.
3. *SITPHOI*, p. 116.
4. *AIHT*, p. 260 ; *TVA*, p. 275.

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YĀDAVAS

Among Yadu's sons, only Kroshṭri and Sahasrajit are important because with them, the Yādavas branched off respectively into the Yādavas and the Haihayas. Gradually, they came into prominence. They first destroyed the *Rākshasa* power in Gujarat Kathiawar who overthrew the Śāryātas there.[1] According to D.P. MISRA,[2] it is not definite who was the first Yādava king to enter India ? It was probably Yadu's twelfth descendant Chitraratha who established himself somewhere on the left bank of the Indus. This must have resulted in encroachment on the domains of the then Pūru king Matināra. In order to strengthen himself against the aggressive Yādava Chitraratha, the Paurava Matināra must have tried to strengthen himself by an alliance with his eastern neighbours, the Mānavas of Brahmavarta. This explains the Puranic reference that Matināra gave his daughter Gauri to Yavanāśva II of the Solar dynasty.

THE MĀNDHĀTRI PERIOD (2750-2550 B.C.)

THE SOLAR DYNASTY

The Ikshvākus rose to great eminence under Māndhātṛi,[3] son of Yavanāśva. He was a fomous king, a *Chakravartin* and a *Samrāṭ*. He married Bindumati, daughter of Śaśabindu of the Yādavas. He was a great conqueror and defeated the Druhyu King Aṅgāra whose kingdom probably lay to the north-east of the Ikshvāku kingdom. The rulers of the east-ward conquered by him were Janamejaya, the Ānava king, Marutta, the Turvaśa king, and Dharmanetra, the Paurava king. The ruler of Prāṁśva dynasty defeated by him was probably Dama. He appears to have spared the Yādava king who was his brother-in-law. Like the great conquerors of the past, he also carried his arms up to the Yamunā and sacrificed on its banks. He carried his arms up to Narmada where the town Māndhāta named after him came into existence. D. P. MISRA[4] thinks that it was during the reign of Māndhātṛi or little later that the three kingdoms of Kosala, Videha and Vaiśālī came into existence one after the other.

Māndhātṛi had three sons Purukutsa, Ambarīsha and Muchukuṇḍa. Purukutsa continued the conquests of his father after becoming the ruler. The Nāgas induced Purukutsa to destroy the Mauneya Gandharvas who have despoiled them. They gave him their princes Narmadā and he rescued them from the Gandharvas. Muchukuṇḍa, the third son of Māndhātṛi, was a famous king. He built and fortified a town on the Narmadā between Pāripātra and Ṛiksha mountains. Muchukuṇḍa's supremacy however did not last long, and the Harhaya king Mahishmant conquered that town and named it Māhishmatī.

THE LUNAR DYNASTY

The kingdom of the Paurvas dwindled down and the neighbouring kings absorbed parts of it. The Kānyakubja kingdom appears to have been overrun by king Māndhātṛi in course of his conquest of the Druhyus. The suzerainty of Ayodhyā

1. *TVA*, p. 274.
2. *SITPHOI*, p. 126.
3. *AIHT*, pp. 261-262; *IITVA*, p. 213.
4. *SITPHOI*, p. 128.

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over Kānyakubja was, however, shortlived, and Janhu brought Kānyakubja into local prominence.[1]

According to the testimony of the *Purāṇas*, the Haihayas (of the Yādava branch of the Lunar dynasty) continued to prosper in their region south of Malwa. P.L. BHARGAVA advocated the view that they were at this time rising to power in the east of Saptasindhu. As the Haihayas ruled over the region of Avanti in later times, the Puranic editors also associated their remotest ancestors with this area;[2] One of their kings Sāhañja is said to have founded a city called Sāhañjani and his son Mahishmant also the town Māhishmatī. Their sucessor Bhadraśreṇya was an aggressive monarch who conquered the Paurava realm. He also extended his sway eastwards into the Kāśī territories, conquered the kingdom, occupied Benaras and reigned there. The Benaras king Haryaśva tried to recover it, but was killed by the Haihayas and his son Sudeva also was overpowered. Later, Benaras is said to have come under the possession of Kshemaka Rākshasa from whom it was subsequently recovered by Durdama of the Haihayas.[3] P.L. BHARGAVA[4] differs by holding the view that after the death of Bhadraśreṇya, Divodāsa and his son Pratardana recaptured Kāśī and allowed Bhadraśreṇya's son Durdama to retire to his own kingdom.

In the Pūru kingdom, the successor of Dharmanetra was the famous Dushyanta. He restored the lost glory of the Pauravas. He was adopted by Marutta, descendant of Turvasu, king of Vaiśālī. He conquered the Pūru realm which had been destroyed by the Haihayas with the help of the Turvasus and began to call himself a Pūru.[5] Dushyanta married Menakā's daughter Śakuntalā who was brought up in the hermitage of Kāṇva of the Kaśyapa family and his son was the celebrated prince Bharata. Dushyanta was succeeded by his son Bharata who was a great conqueror. He conquered the countries both to the west and the east of the Sarasvatī region. In the west, he defeated the Satvants, and in the east he carried his arms beyond the Yamunā i.e. up to the river Gaṅgā. He is known to have performed the numerous sacrifices on the banks of the Sarasvatī, the Yamunā and the Gaṅgā.[6] P.L. BHARGAVA[7] ascribes Bharata's conquests to the early part of the twenty-sixth century B.C. A.D. PUSALKAR[8] places Bharata in a period 2350-1950 B.C. Both these scholars are of the view that the Paurava dynasty came to be called the Bhāratas after the time of Bhārata. On the other hand, D.P. MIRA[9] has tried to prove that the Bhāratas were not connected with the Pūrus and were a fresh wave of Aryan entrants into India. They appear to have occupied parts of northern India at a time when anarchy prevailed there owing to the repeated invasions of the Haihayas from the south. The Tṛitsus had come to India earlier than the Bhāratas and later on the two tribes intermingled and the Tṛitsus also came to be called Bharatas. Tṛitsus were the descendants of Tṛita who liberated Iran and became one of its

1. *TVA*, p. 278.
2. *IITVA*, p. 128.
3. *AIHT*, p. 263.
4. *IITVA*, p. 216.
5. *SITPHOI*, p. 134.
6. *IITVA*, pp. 213-214.
7. *Ibid.*, p. 214.
8. *TVA*, p. 288.
9. *SITPHOI*, 132-159.

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greatest rulers in succession to Yima. The other view is that a branch of the Paurava dynasty Tṛitsu was so named after the great grandson of Nīla.

The Ānavas[1] rose to power under two able kings, Mahāśāla and Mahāmanas. Mahāmanas, seventh in descent from Anu, is styled a *Chakravartin* and lord of the seven *dvīpas*, and he extended the sway of the Ānavas towards the east and the Punjab. Under his two sons Uśīnara and Titikshu, the Ānavas divided into two branches. One branch headed by Uśīnara established separate kingdom on the eastern border of the Punjab. P.L. BHARGAVA[2] thinks that about the time of Uśīnara, Tṛitsu, after whom a branch of the Paurava dynasty was so named, lived. Uśīnara's kingdom was divided among his five sons. Sīvi Auśīnara succeeded to the throne at Multan; from Nṛiga who established a separate kingdom in the present Montgomery district and the northern parts of Bikaner, sprang the Yaudheyas; Nava was the originator of the kings of Navarāshtṛa; rulers of the city of Kṛimila came from Kṛimi; and Suvrata started the Ambashṭhas from the eastern Punjab. Sīvi Auśīnara however was the most prominent among Uśīnara's sons. He conqured practically the whole of the Punjab except the north-west corner, and established through his sons four kingdoms of Vṛishadarbhas (Multan), Sauvīras (Sind), Kekayas (District of Gujarat between the Jhelum and the Chenab and the Madrakas (Lahore). Sīvi Auśīnara and his four sons must have driven the Druhyus ruling in the Punjab to that area which became known as Gandhāra after the Druhyu king Gandhāra. There the Druhyus maintained their position permanently and it is said that five generations afterwards, they began to multiply and in time founded many principalities in the Mlechchha countries in the northern region beyond India.

The other branch of the Ānavas under Titikshu moved eastward and, crossing Videha and Vaiśālī came down to the east and founded a new kingdom. This kingdom afterwards developed into Aṅga and four other kingdoms.

THE PARAŚURĀMA PERIOD (2550-2350 B.C.)

The Paraśurāma period[3] comprising about twelve generations was dominated by the Haihayas and the Bhṛigus in turn. Among the Haihayas, the greatest Haihaya ruler is known to be Arjuna popularly known as Sahasrārjuna. This period is marked by the Haihāya Bhṛigu rivalry. These Haihayas carried raids from time to time and brought about devastation. Paraśurāma of the Bhṛigu dynasty organized a confederacy of various kingdoms including Vaiśālī, Videha, Kāśī, Kānyakubja and Ayodhyā which fought against the Haihayas on various battle-fields. Paraśurāma is known to have defeated them several times. Again the Haihayas revived their power, and even they annexed Ayodhya. The noteworthy ruler of this period was Sagara whose great achievement was the liberation of Ayodhyā from the Haihayas. Sagara seemed to have compelled the Haihayas to move and settle in the South. In course of time, these Haihayas were divided into many branches, and established their separate kingdoms.

1. *TVA*, p. 279.
2. *IITVA*, p. 216.
3. *TVA*, pp. 279-287.
4. *AIHT*, pp. 265ff.

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In the further east of Saptasindhu, the Haihaya power attained the stage of prominence and supremacy during the reign of Arjuna Sahasrabāhu.[1] The thousand arms ascribed to Arjuna were possibly his fleet of a thousand ships. He is described as an ideal monarch unparalled in penance, charities, learning and virtues who conquered the whole world and ruled it with perfect justice. He is said to have conquered the whole earth, and performed a number of sacrifices. He fought the Karkoṭaka Nāgas who occupied Anūpa, captured Māhishmatī and made it his capital. He also defeated Rāvaṇa who invaded his territories, brought him captive and subsequently released him. He appears to have led his victorious compaigns from the mouth of the Narmadā to as far north as the Himalayas.

The Bhṛigus or Bhārgavas, who were contemporaries of the Haihayas, dwelt in Ānarta. They were priests of Arjuna who bestowed great wealth. They were great navigators and expert mariners who controlled the maritime trade between India and the Western World, and occupied the coastal line on the Arabian sea. They sought marital alliances with the Kshatriya ruling families like that of Kānyakubja.

The rivalary between the Haihayas and the Bhārgavas started because the Haihaya ruler Arjuna made efforts for getting control of sea trade, and further he demanded back the wealth he had bestowed on the Bhṛigus. The immediate cause was that he raided Jamadagnī's hermitage, ill-treated the sage, and carried off his cow. Jamadagnī's son Paraśurāma took up the arms against Arjuna and killed him. Thereupon on the advice of his father, Paraśurāma set out on a pilgrimage for the expiation of the sin of killing Arjuna. During the absence of Paraśurāma, Arjuna's sons slew Jamadagni, when he was in deep meditation. This enraged Paraśurāma to the extreme, and he declared Vendetta not only against the Haihayas, but against the Kshatriyas in general, and is said to have rid the earth of the Kshatriyas twentyone times. All this seems to be an exaggeration. It appears that on the strength of the matrimonial alliances of the Bhārgavas with the ruling families of Kānyakubja and Ayodhyā, and also of the growing discontent due to the devasting raids and consequent unpopularity of the Haihayas, Paraśurāma organized a confederacy of various kingdoms including Kānyakubja and Ayodhyā which fought the Haihayas on various battle fields. These are probably referred to by the annihilation of the Kshatriyas twenty one times. Jayadhvaja and other sons of Arjuna were killed in the battle. Jayadhvaja's son Tālajaṅgha tried for the resto-

1. P.L. Bhargava has argued that Arjuna and his near descendants did not rule in Avanti as mentioned by later Puranic editors. In the first place, the country of Avantī was named after the Avantīs, one of the five branches, descended from Arjuna's grandson Tālajaṅgha. The Avantīs, therefore, must have been the founders of the Avantī Kingdom. It is thus clear that Avantī could not have been under the rule of Arjuna and Jayadhvaja, if founded by their descendants. Secondly, the *rishi* Jamadagni, with whom Arjuna came into conflict, is said by the *Mahābhārata*, to have practised austerities near Kurukshetra, far from Avanti. Thirdly, it is clearly said in the ancient *Brahmāṇḍa Purāṇa* that when there was a war between Paraśurāma and the Haihayas, the Haihaya princes took refuge a in the Himālaya. Now, if the Haihayas had been ruling in Avanti, the place of refuge wouldhave been the Vindhyas and not the distant Himalayas (see *IITVA*, p. 136.)

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ration of his kingdom but he did not survive for a long time. Tālajaṅghas had many sons of whom the chief was Vītihotra. The *Purāṇas* state that the Haihayas formed five groups *viz.* Vītihotras, Śāryātas, Bhojas, Avantīs and Kundikeras all of whom were collectively called Tālajaṅghas. Of these, Vītihotra and Kuṇḍikera were in the Vindhya range; the Śāryātas were in Western India, Bhojas near the Aravali hills, and Avantis in Malwa. They carried their raids not only against the kingdom of Madhyadeśa but even against Kānyakubja, Kosala and Kāśī.

At that time, the kingdom of Ayodhyā passed through some crisis in the beginning. King Trayyāruṇa expelled his only son Satyavrata Triśanku and handed over the realm over to his priest Devarāja Vasishṭha. After twelve years, Viśvāmitra restored Satyavrata to the throne overcoming Vasishṭha. Satyavrata was succeeded by his son Hariśhchandra, the embodiment of truth. He was a *Samrāt* and is said to have performed the *Rājasūya*. Hariśchandra's son Rohita is said to have built Rohitapura. The sixth in descent from Hariśchandra was Bāhu. Bāhu's son was Sagara who was a great conqueror. Before him, Ayodhyā was frequently attacked by the Haihayas and the foreign tribes. He defeated the Tālajaṅgha-Haihayas and regained Ayodhyā. He extended his compaign and subdued all the other enemies in North India, He crushed the Haihayas in their own territories, and annihilated their dominion. He determined to destroy the foreign tribes, but at their entreaties Vasishṭha interposed; so Sagara spared their lives but reduced them to great religious and social degradation. Then, he invaded Vidarbha and made peace by marrying the king's daughter, and was received with honour by the Sūrasena Yādavas who were his relatives. Sagar's ablest son Asamañjas, being cruel to the citizens, was discarded and the latter's son Aṁśamant succeeded him.

Sagara's contemporary Yādava ruler was Vidarbha who made peace with the former by marrying his daughter. King Vidarbha then retired to the south into the country named after him leaving the whole of Northern India to acknowledge the suzerainty of Sagara. After Sagara's death, the Yādavas of Vidarbha seem to have extended their authority northward over the Haihaya territory. According to P.L. BHARGAVA,[1] the Yādava ruler, who participated in the battle of ten kings, fought in about the middle of the twentythird century B.C. against the Vedic Sudāsa, was definitely Vidarbha. Sudāsa's victory over ten kings had very far reaching results. The main body of the Yādavas under their king Vidarbha and priest Agasthya migrated southward and, crossing the Vindhyas, settled in the country which was known as Vidarbha after the king. Vidarbha was succeeded by his son Bhīma who ruled contemporaneously with Somaka, grandson of Sudās in the opinion of P.L. BHARGAVA.[2] The second son Kaiśika became the king of Chedi and founded the Chedi line. The location of the territories of the youngest son Lomapāda has not been given.

Sagara's contemporary Bali of the Ānava kingdom in the east appears to have extended his empire. It was subsequently divided among his five sons who named their territories after their own names—Aṅga (Bhāgalpur and Monghyr), Vaṅga

1. *IITVA*, p. 221.

2. *Ibid*, p. 222.

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(Modern Dacca and Chittagong Divisions), Puṇḍra (Northern Bengal), Kaliṅga (the sea coast of Orissa) and Suhma (Burdwān Division).

Jahnu, son of Suhotra, founded the kingdom of Kānyakubja. As he was the first Aryan leader to settle on the Gaṅgā, he gave his name to the river which came to be called Jāhnavī as well as Gaṅgā. Another son of Suhotra named Kāśa founded the kingdom of Kāśī, a little further east on the bank of the same river. Its capital was Vārāṇasī. The foundation of these two kingdoms, according to P.L. BHARGAVA,[1] must have taken place in the early part of the twenty fifth century B.C.

Afterwards, Kānyakubja was ruled by its famous king Gādhi. He had a son named Viśvāmitra. It is likely that Kānyakubja kingdom under Viśvāmitra helped the confederacy raised by Paraśurāma against the Haiyayas. The *Purāṇas* combine the various accounts of different Viśvāmitras, and it is difficult to say which is correct. Ashṭaka probably succeeded Viśvāmitra on Kānyakubja throne.

Kāśī fell into the hands of the Haiyayas who seem to have been engaged in raiding North India. The Kāśī king Divodāsa I and his son Pratardana recovered his territory from the Haiyayas. Pratardana or his son Vatsa extended his sway further, and annexed the country around Kauśāmbī which came to be named the Vatsa country. Taking advantage of the disturbed conditions, the *Rākshasas* occupied the territory of Kāśī. Vatsa's son Alarka restored the old glory by freeing the kingdom from the possession of the *Rākshashas*. He is said to have enjoyed a long and prosperous reign. Kāśī was at the height of its prosperity at that time.

During that period, the kingdom of Vaiśālī was ruled by the three famous rulers namely Karandham, his son Avīkshit and his son Marutta. All of them tried their best to check the aggression of the Haihayas. Karandam was besieged by a confederacy of kings whom at least he defeated. He also rescued his son Avīkshit who was captured by the king of Vidiśā. Marutta was a famous king and Chakravartin. He had to fight both against the Māgas and the Haiyaya. For ending the Haihaya aggressions permanently in the east, the credit goes to Marutta.

THE RAMACHANDRA PERIOD (2350-1950 B.C.)

This Rāmchandra period[2] is regarded as a landmark in Indian history. The old Aryan home of Saptasindhu lost its importance as the centre of Aryan culture, and a new era of expansion set in. Kuru, Pañchāla, Kosala and other parts of Madhyadeśa now became seats of Aryan culture and learning. This period is also marked by the spread of Aryan ideas and institutions far and wide in the South. P.L. BHARGAVA[3] placed the rule of Rāma Dāśarathī in 1600 B.C. while S.N. PRADHAN[4] assigns 1500 B.C.

There was some setback to Ayodhyā after Sagara's death, but the dynasty again rose to prominence under Aṁsumant's second successor Bhagīratha. He is

1. *IITVA*, p. 216.
2. *TVA*, p. 288-293; *AIHT*, pp. 273-280.
3. *IITVA*, p. 229.
4. *COAI*, p. 175.

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celebrated as a *Chakravartin* and *Samrāṭ*. He is reputed to have brought down the sacred river Ganges (known as Bhagīrathī after him) from the heaven through the power of his penance in order to liberate his ancestors. The Gaṅgā itself received the name Bhagīrathī to commemorate the great achievement of Bhagīratha. It is possible that from the time of Bhagīratha that the river Gaṅgā became navigable up to the sea. P.L. BHARGAVA[1] advocates that Bhagīratha left his ancestral kingdom with his army and subjects, and he founded a kingdom named Kosala with its capital at Ayodhyā on the bank of the Sarayū, a tributary of the Gaṅgā. He must have been induced to leave his ancestral kingdom either by adverse circumstances or by the praise of the Gangetic region that reached his ears. The beginning of this period may be dated about 2000 B.C.

In the Kosala dynasty, the most noted king after Bhagīratha was his fourth successor Ambarīsha Nābhāgī. He was a powerful monarch and in his reign, Ayodhyā rose into prominance. Ambarisha's son Sindhudvīpa's grandson was Ṛituparṇa who was a friend of famous Nala, king of Nishāda, who married Damayantī, the daughter of Bhīmaratha of Vidarbha. Ṛituparṇa's son Sudāsa has been identified with the Vedic Sudās of the Dāśarājña by some scholars; but beyond mere similarity of names, there is nothing in support of this identification.[2] Sudāsa's son and successor Mitrasaha was known as Kalmāshapada because the charmed water turned his feet into stone. He had to raise issue by a *Niyoga* or levirate union with Vasishṭha. The two lines, however, were united into a single monarchy with the accession of the illustrious king Dilīpa Khaṭvāṅga, and Kosala again rose to prominence under him. He was a great *Samrāṭ* and *Chakravartin*. He was succeeded by his great son Raghu who was an ideal ruler. The Ikshvāku dynasty is called Raghuvaṁśa on account of this celebrated Raghu. He conquered the whole earth and performed the *Viśvajit* sacrifice.

Daśaratha was a very famous king and his contemporaries are known.[3] Among the Aryan kingdoms, Videha was at that time ruled by Sīradhvaja Janaka, Vaiśālī by Sumati, Aṅga by Lomapāda, Sūrasena by Sātvata ruler Madhu and Ānava kingdom of Vekaya in Punjab by Aśvapati. Among kings of non-Aryan kingdom, who were contemporaries of Daśaratha, the most famous were Balin, king of *Vānaras* in Kishkindhā (south of the river Krishṇā), Kubera, king of Yakshas in Alakā, and Rāvaṇa, king of the Rākshas as in Laṅkā.

Daśaratha's son by his wife Kauśalyā was Rāma, the greatest name among Aryan heroes. The *Rāmāyaṇa* composed by Vālmikī deals with Rāma's achievements. He married Sītā, daughter of the Videha king Sīradhvaja Janaka. Rāma was to be installed on the throne but he was banished along with Sītā and his brother Lakshmaṇa to the Daṇḍaka forest, for fourteen years. He went to Prayāga and thence to Chitrakūṭa where he lived for some time. He moved southward and reached Pañchavaṭī (near Nasik). Thereafter, he went to south in the province called Nanasthāna which was a colony of the *Rākshasas*. Sītā was carried away by Rāvaṇa to Ceylon. Rāma invaded Ceylon, killed Rāvaṇa and

1. *IITVA*, p. 225.
2. *TVA*, p. 289.
3. *IITVA*, pp. 227-228.

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recovered Sītā. His brother Bharata acted as regent during Rāma's exile. After his return, he was crowned as a king and reigned prosperously. People were so happy during his rule that the term '*Rāmarājya*' has come to mean good government.

Rāma has two sons Kuśa and Lava. Kuśa succeeded him, and is said to have founded a town named Kuśāvatī on the Vindhyā hills. Lava founded and ruled over the city of Śrāvastī in the north of Kosala. Bharata's sons Taksha and Pushkara conquered Gandhāra, and founded the cities of Takshilā (Modern Taxila near Rawalpindi) and Pushkarāvatī (near modern Charsadda) respectively. Lakshmaṇa had two sons Aṅgada and Chandraketu. To them are assigned two States near the Himalayas named Kārupatha and Malla. Aṅgada ruled in Kārupatha where he founded a town named Aṅgadīyā, and Chandraketu ruled in Malla where he built a town named Chandrakāntā. Śatrughna, the younger brother of Rāma, conquered the Śūrasena country, killing its king Lavana, son of Madhu, and built Mathurā where his son Subāhu ruled. His other son Śatraughātin seems to have ruled over Vidiśā.[1]

The Lunar Dynasty

Bharata's fifth successor Hastin made Hastināpura his capital. Hastin had two sons, Ajamīḍha and Dvimīḍha, and under them the Paurava dynasty expanded and formed fresh kingdoms. Ajamīdha, the elder, continued the main line of Hastināpura, and Dvimīḍha founded the Dvimīdha dynasty in the modern District of Bareilly. On Ajamīdha's death, the main Paurava realm was divided among these sons. Rīksha succeeding his father at Hastināpura in the main line, which remained the Paurava line, and Nīla and Bṛihadvasu founded what later came to be known respectively as the north Pañchāla and south Pañchāla respectively.[2]

Ajamīdha's sixth successor was Bhṛimyaśva who had five sons. Bhṛimyaśva's kingdom was divided among his five sons who gave its name Pañchāla. Mudgala, the eldest, founded an important branch. Yadhryaśva, the grandson of Mudgala, extended the kingdom, and his son Divodāsa further augmented it. F.E. PARGITER,[3] and others identify this Divodāsa and his descendant Somadata-Sudāsa with their Vedic namesakes, the latter of whom was the chief participant in the celebrated battle of ten kings. As Mudgala belongs to the second step above Divodāsa, Mudgala may be placed in about 1550 B.C. according to S.N. PRADHAN.[4]

THE KRISHNA PERIOD (1950-1400 B.C.)

During the Kṛishṇa period,[5] the Pañchālas, the Kurus and the Yādavas figure prominently in traditional history. D.P. MISRA[6] has tried to prove the Kurus to be a new wave of the Aryan invaders quite distinct from the Bharatas. Gradually, these Kurus raised their realm to eminence by extending their sway over larger

1. *AIHT*, pp. 278-279.
2. *AIHT*, p. 274.
3. *Ibid*, p. 275.
4. *COAI*, p. 175.
5. *TVA*, pp. 294-300; *AIHT*, p. 281-287.
6. *SITPHOI*, p. 161.

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territories. The Bhārata war was the epoch-making event of this age in which kings and people of many countries participated. The main hero of this war was Śrī Kṛishṇa after whom this period is famous. Further with the close of the Bhārata war, the Kali Age started.

About this period, there reigned in North Pañchāla Sṛiñjaya, his son Chyavana-Pijavana and his son Sudāsa-Somadatta. Chyavana Pijavana was a great warrior, and Sudāsa extended his territory. They raised the dynasty to height. They seem to have conquered both the Dvimīḍha dynasty and south Pañchāla. Sudāsa drove the Paurava king Saṁvarṇa of Hastināpura out, defeating him on the Yamunā. Saṁvarṇa took refuge in the fortress near the river Indus many years. This Sudās is identified with the Vedic Sudāsa who is famous for defeating the confederacy of ten kings. The neighbouring kings might have joined Saṁvarṇa in the confederacy against Sudās. Sudās was succeeded by his son Sahadeva and grandson, Somaka, and the kingdom declined.[1]

Saṁvarṇa recovered his kingdom of Hastināpura with Vasishṭha's aid probably from Somaka, and so conquered North Pañchāla. Saṁvarṇa was followed by his more renowned son Kuru, after whom the old Brahmāvarta came to be called Kurukshetra and its rulers as the Kurus. He extended his sway subduing south Pañchāla and performed sacrifice at Paryāga. D.P. Misra[2] advocates a theory that the Kurus were distinct from the Bharatas, and treats them as yet another stream of Aryan entrants into India. These known as a branch of the Uttarakurus constituted perhaps the last wave of Aryan entrants into India during the Vedic period under the leadership of one Saṁvarṇa. Scholars like F.E. Pargiter,[3] S.N. Pradhan[4] and P.L. Bhargava[5] notice a gap in the combined genealogy of the Bhāratas and Kurus. P.L. Bhargava realizes that the Kurus were cut off from the former by a long duration of time and practically formed a new dynasty.

Kuru had three sons Parīkshit, the eldest, Jahnu, and Sudhanvan. The reign of Parīkshit was a kind of golden age in which the people flourished exceedingly. Parīkshit had Janamejaya as his son, and the latter's sons were Śrutasena, Ugrasena and Bhīmasena but nothing further is said about them. North Pañchāla had sunk into insignificance, but the Dvimīḍha dynasty revived, and also South Pañchāla under the Nipas in their capital Kāmpilya.

Vasu, the fourth successor of Sudhan, conquered the Chedi kingdom from the Yādavas and founded a dynasty there. Vasu was a *Samrāṭ* and *Chakravartin* and extended his sway over adjoining Magadha and possibly over Matsya also. He had five sons, among whom he divided his territory, establishing them in separate kingdoms. Magadha was entrusted to his eldest son Bṛihadratha, Kuśa Kauśāmbī, Yadu had Karūsha, and Pratyagraha got Chedi. The last son got Matsya, Bṛihadratha who founded Bārhadratha dynasty, made Magadha great.

The Kaurava kingdom declined for some time but again became eminent under Pratīpa who was a famous ruler. He had three sons Devāpi, Bāhlīka and Śāntanu.

1. *AIHT*, pp. 280-281.
2. *SITPHOI*, pp. 161-163.
3. *AIHT*, p. 113.
4. *COAI*.
5. *IITVA*, p. 104.

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After Pratīpa, Śāntanu became the ruler. His son Bhīma renounced his right to the throne in favour of his younger brothers in order to enable his father to marry Satyavatī. Bhīsmha was a great warrior, an able administrator and well versed in Politics, Science of war, etc. Śāntanu's grand sons were Dhṛitarāshṭra and Pāṇḍu. Dhṛitarāshṭra had many sons, Duryodhana etc., who as the elder branch were called the Kauravas. Pāṇḍu had five sons—Yudhishṭhira, Bhīma, Arjuna, Nakula and Sahadeva, who were known as the Pāṇḍavas. Pāṅḍu died early, and there was intense jealousy between the Cousins.

Ugrāyudha of the Dvimīḍhas conquered North Pañchāla and destroyed the dynasty in South Pañchāla. He then attacked the Kauravas after Śāntanu's death, but Bhīshma killed him, and Pṛishata, the heir to North Pañchala, who had taken refuge in Kāmpilya, recovered his ancestral kingdom. South Pañchāla with its dynasty destroyed would seem to have been under the sway of the Kauravas. Pṛishata was succeeded by his son Drupada in North Pañchāla, but Droṇa whom Drupada treated with disdain, conquered him with the aid of the young Pāṇḍavas and Kauravas. Droṇa got both North and South Pañchāla, and keeping North Pañchāla for himself gave Drupada South Pañchāla.

Jarāsandha, king of Magadha, then rose to the highest power, and extended his supremacy around, and as far as Mathurā, where Kaṁsa, the Yādava king, who had married two of his daughters, acknowledged him as overlord Kaṁsa, relying on his favour, tyrannized over his own subjects, and Kṛishṇa killed him. This roused Jarāsandha's wrath against Kṛishṇa and the Bhojas of Mathurā. For a time, they resisted him, but feeling their position insecure migrated in a body to Gujarat and established themselves in Dvārakā where Kṛishṇa ultimately obtained the leadership. The Pāṇḍava brothers namely Bhīma and Arjuna with Kṛishṇa's help killed Jarāsandha, their common enemy.

The Pāṇḍavas then contended with Duryodhana and the other sons of Dhṛitarāshṭra for their share of the Kaurava territory and received the small principality of Indraprastha (Delhi). They were banished for fourteen years, as the penalty of losing at dice. When they wanted to reclaim their principality at the end of the period, Duryodhana refused all terms of the agreement. When al l efforts of negotiations failed, the Great war known as the Bhārata war began. The supporters of the Pāṇḍavas were chiefs of Pañchālas, Matsya, Chedi, Karusha, Western Magadha, Kāśī and South-Western Yādayas. Under the Kauravas came practically the whole of eastern India, the whole of north-west, Kosala, Vatsa and Śūrasena in the Madhyadeśa, and Māhishmatī, Avanti and Śālva in the west. The place of battle was Kurukshetra, and it lasted for 18 days. All the Kauravas died except their old and blind father Dhṛitarāshṭra. The Pāṇḍavas emerged victorious at a high cost. Yudhishṭra became a king of Hastināpura but did not like to rule long. He retired to forest along with his brothers abdicating the throne in favour of Parīkshit II, the grandson of Arjuna.

The *Purāṇas* have preserved a list of genealogies of the kingdoms which flourished after the Bhārata war.[1] Among them, the Pauravas of Hastināpura and

1. *TVA*, pp. 319-328.

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Kauśāmbī, the Ikshvākus of Kosala and the Bārhadrathas of Magadha are important. The *Purāṇas* deal only with them in detail and give merely the number of kings in the case of other contemporary dynasties. From the Puranic sources, the history of India after the Bhārata war is known in vague outline. India is known to be divided into small kingdoms with no paramount power to rule over.

THE PAURAVAS

The first Paurava king of Hastināpura after the Bhārata war was Parīkshit II, son of Abhimanyu and grandson of Arjuna. As a consequence of this war, the Pauravas seem to have become weakened during this period. Taking advantage of this situation, Takshaka, king of the Nāgas, attacked Hastināpura, and Parīkshit II gave his life in defence of the kingdom. Afterwards, Parīkshit II was succeeded by Janamejaya who in order to avenge the death of his father invaded Taxila, and slaughtered countless Nāgas. Only through the intercession of Āstika, Janamejaya stopped this slaughter. The conquest of Taxila in the extreme North-West indicates that the intervening Madra or Central Punjab also was under the control of Janamejaya. He was a powerful monarch who re-established his dominions. He made Taxila his headquarters for sometime. Aśvapati Kekaya, whose territory lay in the east of Gandhāra, probably accepted Janamejaya's suzeranity. Kaksha-sena, a brother of Janamejaya, established a seperate branch and continued to rule there long after the destruction of Hastināpura and the migration of senior branch to Kauśāmbi.

Janamejaya was succeeded by his son Śatānīka who married a princess from Videha. To Śatārīka was born Aśvamedhadatta who was succeeded by his son Adhisīmakṛishṇa. It appears that Śatānīka was the contemporary of Ugrasena, Janaka of Videha, and Aśvamedhadatta of Pravāhaṇa Jaivāli of the Pañchālas. Adhisīmakṛishṇa's son and successor was Nichakshu, during whose reign, his kingdom was threatened by severe calamities. His capital Hastināpura was destroyed by the floods of the Ganges. The reference to the devastation of crops by locusts in the Kuru country in the *Chhāndogya Upanishad* is probably concerned with the incident of the reign of this ruler. As a result of this catastrophe, king Nichakshu and Kuru people migrated to Kauśāmbī, a place at a distance four hundred fifty km for safety. On the other hand, F.E. PARGITER suggests that the king abandoned Hastināpura and made Kauśāmbi his capital because he was driven by pressure from Punjab. If there would be any flood of the Ganges, he could have chosen some other town nearby as a new capital and there was no necessity to move at such a long distance.

The history of the Paurava kings of Kauśāmbī is not so clear because the *Purāṇas* give only a list of twenty three kings after Nichakshu up to Kshamaka, the last in the line. Among these rulers, Śātānīka and his son Udayana are known only to be the important figures. Śātānīka, also styled Parantapa, is said to have attacked Champā, the capital of Aṅga, during the reign of Dadhivāhana. According to Buddhist accounts, Udayana was born on the same day as the Buddha. He succeeded his father on the Vatsa throne.

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IKSHVĀKUS OF KOSALA

Bṛihadbala of Kosala was killed in the Bhārata war. His sixth descendant Divākara was a contemporary of the Paurava king Adhisīmakṛishṇa. From the Buddhist accounts, it is known that there were frequent wars between the neighbouring kingdoms of Kosala and Kāśī for supremacy. Sometimes Kāśī and sometimes Kosala emerged victorious. There were also friendly relations and matrimonial alliances between these two countries. These two countries also at times came under a common ruler who came at the head either by conquest or by inheritance. Though Kāśī seems to have succeeded in the beginning but the final victory went to Kosala.

Four stages in the Kāśī and Kosala relations are known. First, Brahmadatta, the powerful king of Kāśī, defeated the weak Kosalan King Dighiti. Afterwards both Kāśī and Kosala flourished side by side, respectively under Brahmadatta and Mallika. At the third stage, the Kosala king took advantage of the good nature and religious tendencies of Kāśī King and invaded the neighbouring kingdom. The final stage marks the total absorption of the Kāśī Kingdom under the Kosala King Mahākosala, who has been mentioned as the sovereign of both Kāśī and Kosala. The Kosala king Kaṁsa appears to have been a predecessor of Mahākosala whose son and successor was Prasenjit.

BĀRHADRATHAS OF MAGADHA

Bārhadratha dynasty ruled in Magadha at the time of the Bhārata war, and that Jarāsandha, the first great emperor of Magadha before that war, was succeeded by his son Sahadeva, who became an ally of the Pāṇḍavas, and was killed in the war. After Sahadeva, his son Somādhi became king at Girivraja. Senājit, the sixth successor of Somādhi, was a contemporary of the Paurava Adhisīmakṛishṇa and Kosala Divākara. Ripuñjaya is said to have been the last king of the Bārhadratha dynasty. Ripuñjaya was probably killed by his minister, and was succeeded by Bimbisāra.

PAÑCHĀLA

In addition to the kingdoms of Kosala, Vatsa and Magadha, several others flourished during the period after the Bhārata. The kingdom of Pañchāla is well known. There was the division of the Pañchāla into north and South during the reign of king Drupada who participated in the Bhārata war. The *Aitareya Brāhmaṇa* (VIII. 23) represents Durmukh as a universal monarch who made extensive conquests in every direction and was anointed by Bṛihaduktha. Probably Durmukha (Dummukha) of the Brahmanical and Buddhist accounts is identical with Dvimukha of Pañchāla, who, according to Jaina tradition, was a Pratyeka-Buddha. Parichakrā, Kāmpilya and Ahichchhatra were the important cities in Pañchāla.

VIDEHA

The kidgdom of Videha was a great centre of learning. The Videha dynasty of the Janakas ended with Kṛiti who has been identified with Kṛitakshaṇa, son of

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Bahulāśva, the ruler at the time of the Bhārata war. Kṛiti may be identified with Karāla (Janaka), the Vaideha, mentioned in the *Arthaśāstra* who is said to have perished along with his kingdom and relatives on account of his violation of a Brāhmaṇa maiden. This story is confirmed in the Buddhist accounts which make Kalāra the last of the line. The great king Janaka of Videha and Yājñavalkya are famous but their chronology is uncertain. It appears from the *Mahābhārta* that one Janaka was ruling over Videha at the time of Janamejaya, son of Parīkshit, and Śvetaketu, son of Uddālaka, a prominent figure in Janaka's court, attended Janmejaya snake sacrifice. The philosopher king Janaka of the *Upanishads* was a contemporary of Yājnavalkya and Aśvapati, king of the Kekayas, but unfortunately both Yājnavalkya and Aśvapati are also familiar names, just like Janaka so that chronological deductions can be drawn from this synchronism. One pair of Janaka, the philosopher king, and Yajñavalkya flourished after the period of the Bhārata War, as Śātānīka, the successor of Janamejaya, is said to be the disciple of this Yājnavalkya who was himself a disciple of Vaiśampāyana. Ugrasena may probably be the personal name of this Janaka, though this name does not occur in dynastic lists.

ANGA

Dadhivāhana, king of Aṅga, is said to be the son of Aṅga. The Jaina tradition represents Dadhivāhana's daughter Chandanā or Chandrabālā as the first female to embrace Jainism shortly after Mahāvīra's death. Śatānīka, the father of Udayana of Kauśāmbī, attacked Champā, the capital of Dadhivāhana. Aṅga seems to have been on the terms of hostility all along with its neighbouring state of Magadha. It included parts of Magdha as Rājagṛiha has been mentioned as a city of Aṅga. The suzerainty of Aṅga over Magadha is clear from the fact the Brahmadatta defeated Bhaṭṭiya of Magadha. But soon Bimbisāra, son of Bhaṭṭiya, in order to avenge his father's defeat, killed the Aṅga king Brahmadatta and annexed the capital Champā.

OTHER KINGDOMS

Besides there are other kingdoms whose details are not much known. The kingdom of Sūrasena with its capital at Mathura on the Yamunā was under the occupation of the Yādavas. To the South of Sūrasena lay Avantī now known as Central Malwa. The Avantīs were one of the five branches of the Haihayas. According to some scholars, the twenty vītihotras, who are mentioned in the *Purāṇas*, as having ruled after the Bhārata war, were kings of Avantī. The *Purāṇas* refer to thirtytwo rulers of Kaliṅga and twentyfive of the Aśmaka kingdom, but do not give any other details. There were also the kingdoms of Gandhāra and Kāmboja in the west, but they do not come into prominence.

AGREEMENT OF VEDIC AND PURANIC TRADITIONS

P.L. Bhargava[1] tried to prove that there is agreement between the Vedic and Puranic traditions. The names of the Puranic lists are found mentioned in Vedic

1. *IITVA*, pp. 140-147.

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literature. The name of Sudyumna is mentioned first among sovereign kings in the *Maitrāyaṇī Upanishad*, Purūravas is mentioned in the *Ṛigveda* and the *Śatapatha, Brāhmaṇa*. His descendants Āyu, Nahusha, and Yayāti are also mentioned in the *Ṛigveda* which also mentions Yadu, Turvaśa, Druhyu, Anu and Pūru, the five sons of Yayāti. Purūravas, Nahusha, Yayāti and Pūru are mentioned in the *Ānukramaṇīs* also.

Among Yādava kings, Śaśabindu is mentioned in the *Maitrāyaṇī Upanishad*. Sahasrabāhu, another name of the Haihaya king Arjuna, is mentioned in the *Ṛigveda* VIII, 45,26. His descendant Vītahavya is mentioned in the *Ṛigveda*, the *Atharvaveda* and the *Anukramaṇīs*. The Satvants are mentioned in the *Śatapatha Brāhmaṇa*, and a famous prince of this clan Babhru is mentioned in the *Aitareya Brāhmaṇa* and the name of his father Devāvṛidha suggested by his patronymic Daivāvṛidha. The most famous prince of this clan Kṛishṇa is probably identical with Kṛishṇa Devakīputra mentioned in the *Chhāndogya Upanishad* as suggested by H.C. RAYCHAUDHURI. Among Vaidarbhas, Bhīma is mentioned in the *Aitareya Brāhmaṇa* and the name Vidarbha suggested by his patronymic Vaidarbha. The Chaidyas are known even to the *Ṛigveda* which mentions a king of this dynasty named Kaśu.

Among Ānavas, the name of king Uśīnara is suggested in the *Ṛigveda* by the mention of his wife Uśinarāṇī. Śivi is mentioned in the *Anukramaṇīs* and the *Baudhāyana Śrauta Sūtra*, and the name of his fathes Usīnara is suggested by his patronymic Auśīnara. Among branches of Ānavas, the Kekayas are mentioned in the *Śatapatha Brāhmaṇa* and the *Chhāndogya Upanishad*, the Mādras are mentioned in the *Āttareya Brāhmaṇa* and an Ambashṭha king is mentioned in the *Aitareya Brāhmaṇa*.

Among Paurava kings, Bharata is mentioned in the *Ṛigveda*, the *Śatpatha Brāhmaṇa*, and the *Aitareya Brāhmaṇa*, and the name of his father Duhshanta is suggested by his patronymic Dauḥshanti occurring in the latter two works. Bharata's son Vitatha is probably to be identified with a king named Vidatha mentioned in a hymn of the *Ṛigveda* as a contemporary of Trasadasya. Suhotra is mentioned in the *Anukrama-ṇīs*, as also his grandson Ajamīḍha who is called Sauhotra. Ajamīḍha is mentioned in the *Ṛigveda* also. Riksha is referred to in the *Ṛigveda*. Parīkshit is mentioned in the *Atharvaveda*. Pratīpa is mentioned in the same *Veda*, and the name of his father Pratiśravas (another name of Dilīpa) is suggested by his patronymic Prātisutvana. Śantanu is mentioned in the *Ṛigveda*. Dhṛitarāshṭra is mentioned in the *Kāṭhaka Saṁhitā* and the name of his father Vichitravīrya suggested by his patronymic Vaichitravīrya.

Among kings belonging to branches of the Pauravas, many of the Kānyakubja kings are referred to in the Vedic literature. The name Jahnu occurs in the *Aitareya* and *Panchaviṁśa Brāhmaṇas*. Kuśika is mentioned in the *Ṛigveda*, the *Aitareya Brāhmaṇa*, and the *Anukramaṇīs*. Gāthin is also mentioned in the *Aitareya Brāhmaṇa* and the *Anukramaṇīs*. Among Kāśī kings, Divodāsa is mentioned in the *Kāṭhaka Saṁhitā* and the name of his father Bhīma is suggested by his patronymic Bhaimaseni. His son Pratardana is mentioned in the *Kaushitaki Brāhmaṇa* and *Upanishad* where he is called Daivodāsa.

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Among Tṛitsu kings, Tṛitsu is mentioned in the *Ṛigveda*. The name of Bhṛimyaśva is suggested by the patronymic of Mudgala who is called Bhārmyaśva in the *Anukramaṇīs*. Mudgala is mentioned in the *Ṛigveda* also. His son and grandson Yadhryaśva and Divodāsa are mentioned in the same *Veda*. The name of Pijavana is suggested in the patronymic of Sudās, a famous Vedic king mentioned in the *Ṛigveda*, the *Aitareya Brāhmaṇa* and the *Anukramaṇīs*. The name of Somaka, the grandson of Sudās, is mentioned in the *Ṛigveda* and *Aitareya Brāhmaṇa*.

Among Aikshvākus, the name of Ikshvāku is found in the *Ṛigveda* and the *Atharvaveda*. Kuvalayāśva is mentioned in the *Maitrayāṇī Upanishad*. Mandātṛi is mentioned in the *Ṛigveda*, the *Gapatha Brāhmaṇa*, and the *Anukramaṇīs*, and his father's name Yuvanāśva is suggested by his patronymic Yauvanāśva. Purukutsa is mentioned in the *Ṛigveda* and also in the *Śatapatha Brāhmaṇa* where he is called Aikshvāka Trasadasyu. Paurukutsī is mentioned in the *Ṛigveda*, the *Anukramaṇīs*, and the *Jaiminīya Upanishad Brāhmaṇa*. Hariśchandra is mentioned in the *Aitareya Brāhmaṇa*. His son Rohita is also mentioned in the same work. Bhagīratha is mentioned in the *Jaimiñiya Upanishad Brāhmaṇa*. Ambarīsha is mentioned in the *Maitrayāṇī Upanishad*. Sindhudvīpa, son of Ambarīsha, mentioned in the Anukramaṇīs. Lastly, Hiraṇyanābha is mentioned in the *Praśna Upanishad* and the *Śānkhāyana Śrauta Sūtra*.

Among Prāṁśva kings, the name of Marutta is mentioned in the *Śatapatha* and *Aitareya Brāhmaṇas* and the name of his father Avīkshit suggested by his patronymic Avīkshita. Śaryāta, the most famous of the sons of Manu, is mentioned in the *Ṛigveda* the *Anukramaṇīs* and the *Śatapatha* the *Aitareya* and the *Jaiminīya Upanishad Brāhmaṇas* as *Śaryata*.

COMPARATIVE VALUE OF THE VEDAS AND THE PURĀṆAS AS SOURCES OF TRADITIONAL HISTORY

There is a difference of opinion among scholars as to the comparative value of the Vedic texts and the *Purāṇas* in regard to the historical data supplied by them.[1] A.B. KEITH is excessively sceptical about the historical value of the *Purāṇas* and is doubtful regarding the historicity of any event which is not explicitly mentioned in the *Ṛigveda*. F.E. PARGITERR goes to the other extreme and gives more weight to the Puranic tradition than to the Vedic evidence, which he styles as the tradition of the Brāhmaṇas who possessed no historical sense. The so-called Kshatriya tradition, however, is hardly an unpolluted source of history. Priority of date and comparative freedom from textual corruption are doubtless two strong points in favour of Vedic texts. The evidence of the *Purāṇas*, on the other hand, cannot be ruled out altogether, because despite a good deal of what is untrustworthy in them, they alone contain something like a continuous historical narrative, and it is absurd to suppose that the elaborate genealogies were all merely figments of imagination or a tissue of falsehood.

1. *TVA*, pp. 304-316.

2. *AIHT*.

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The theory of F.E. PARGITER that the *Purāṇas* represent Kshatriya traditions is based on two assumptions: (1) That the heroes of the legends and stories in the *Puṛāṇas* are Kshatriya kings who do not figure in Vedic literature, and (2) the transmission of their history was entrusted to *Sūtas* of Kshatriya origin. A.D. PUSALKAR[1] thinks that there is hardly any foundation for these beliefs. The *Sūta* was not a non-Brāhmaṇa but a venerable sage. Besides there have never been in India two such water tight compartments as the Brāhmaṇa tradition and Kshatriya tradition. There is also glorification of the Brāhmaṇas. The *Purāṇas* themselves assign a comparative small portion of geneological account but their main bulk deals with Vedic and Brahmanic love. Moreover, the *Purāṇas* take pride in styling themselves as the 'fifth *Veda*'. These are not two distinct sets of tradition, but both are Brahmanical traditions, though produced under different environments and with different aims and objects. There is no irreconciable contradiction or conflict between the Vedic texts and the *Purāṇas*. *The Ṛigveda*, is a Kuru pañchāla product; naturally therefore the kings belonging to those clans play prominent roles in it, and others find but incidental mention. Kings, who are mentioned in the Vedic texts but are not found in the Puranic traditions, were possibly princes and chieftains of smaller dynasties, not preserved in the dynastic lists in the *Purāṇas*. There is also the possibility of the same person being referred to under different names in two sets of traditional accounts. When the Puranic accounts are corroboratad by the Vedic evidence, it is legitimate to take their testimony as valid even in matters on which the *Ṛigveda* is silent. The Puranic data about some of the royal dynasties, kings and Brāhmaṇa families find confirmation in Vedic literature.

The *Ṛigveda* mentions Yayāti as an ancient sacrificer and a son of Nahusha. It mentions the names of the five tribes. But in the *Purāṇas* and the *Mahābhārata* Yayāti has been described as a king, and the names of the five tribes as his sons. These tribes have been described as Vedic *Pañchajanas*. The Pūrus appear as enemies of Sudāsa. There is no connection between the Pūru of the *Ṛigveda* and the *Purāṇas*.

According to the Puranic evidence, Mudgala, the oldest of the five Pañchālas, was the founder of the main branch of the north Pañchāla, and among his descendants were Yadhryaśva, Divodāsa, Mitrayu, Maitreya Soma, Sṛiñjaya, Chyavana Pañchajana, and Sudās or Somadatta. Though the *Ṛigveda* mentions Mudgala and Sṛiñjaya, it does not indicate any relation between them and Sudāsa. The Rigvedic Sudās is distinctly called the son of Pijavana whereas the Puranic Sudās had Chyavana Pañchajana for his father. The *Purāṇas* cannot be said to have mistaken Pañchajana for Pijavana as suggested by F.E. PARGITER. It seems that the title Pañchajana has been given to Sudās in his capacity as the leader of the five tribes.

The *Purāṇas* inform that Sudās or Somadatta (in some *Purāṇas*) drove the Paurava king Saṁvarṇa of Hastināpura out but according to the *Ṛigveda*, Sudās defeated the confederacy of the neighbouring ten kings. The important tribes such

1. *TVA*, p. 305.

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as the Sātvats, the Bhojas, the Videhas and the Ikshākus, of the *Purāṇas* either among the allies or among the adversaries of Sudās are not found contemporary of Sudās in traditional history based on the *Purāṇas*. The Pūru adversary of Sudās has been named Purukutsa in the *Ṛigveda* whereas according to traditional history based on the *Purāṇas*, he was known Saṁvaraṇa.

The geographical knowledge of the period of *Ṛigveda* did not extend much beyond the Gaṅgā or Yamunā in the East and Vindhyas in the south but in the period of Sudās in traditional history which comes after Daśaratha or Rāma indicates the knowledge of practically the whole of India. The *Vedas* and the *Purāṇas* contain contradictory views about the expansion of the Aryans in India, whereas the Vedic literature makes it clear that the Aryans moved eastward and southward from their original home in the Punjab, the *Purāṇas*[1] state that the Aryan dynasties began in the Madhyadeśa, Bihar and even Gujarat, and later conquered other parts of India including the Punjab. The *Purāṇas* associate the Aryans with Malwa from very early times, but according to the *Vedas*, the migration took place in the later Vedic period.

The references in the Vedic texts clearly prove the existence of Janamejaya Parīkshit as an ancestor of the Pāṇḍavas and grandson of Kuru. The peace and plenty in the Kuru realm, alluded to in the *Atharvaveda* and in the *Brāmaṇas*, came as the result of Kurus extensive conquests, and his son Parīkshit and grandson Janamejaya continued the good work started by Kuru. The *Aitareya* and the *Śatapatha Brāhmaṇa* enumerate Janamejaya as the performer of the *Aśvamadha* sacrifice. The *Brāhmaṇas* further mention Tura Kāvasheya as the priest who anointed Janamejaya with *Aindra Mahābhisheka*, and Tura Kāvasheya can be proved to be contemporaneous with Janamejaya, the ancestor of the Pāṇḍavas. Kavasha Ailūsha, father or grandfather of Tura, was drowned in the *Dāśarajña*, so that he was a senior contemporary of Kuru, son of Saṁvaraṇa who lived during the *Dāśarajña* period. Janamejaya, who was the grandson of Kuru, was thus contemporaneous with Tura. This sacrifice, with Tura Kāvasheya as priest, was performed for celebrating the attainment of imperial status by Janamejaya. The *Śatapatha Brāhamaṇa* refers to another sacrifice performed by Janamejaya Parīkshit with the aid of Indrota Daivāpa Śaunaka for riding himself of a grievious sin which is described as *Brahmahatayā* (killing of a Brāhmaṇa). The *Bṛihadāraṇyaka Upanishad* refers to the vanquished glory of the Pārikshitas.

The *Purāṇas* and the *Mahābhārata* refer to two Janamejaya Pārikshitas, one an ancestor of the Pāṇḍavas (being grandson of Kuru), and the second, a successor of the Pāṇḍavas (grandson of Arjuna). The very fact that Bhīshma narrates the story of Janamejaya's *Aśvamedha* to Yudhishṭhira as an ancient legend clearly shows that the *Aśvamedha* referred to was performed by the ancestor of the Pāṇḍavas, and proves that a Janamejaya Parīkshit before the Pāṇḍavas was a real person and not a shadowy figure. The *Harivaṁśa* refers to Janamejaya's killing the son of Gārgya for insulting him, as the result of which Gārgya cursed him. The *Aśvamedha* performed

1. *AIHT*, p. 302.

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by Indrota Daivāpa Śaunaka was to purge Janamejaya of this sin. The incident of the chariot of Yayāti states that the chariot continued in the Paurava line till the period of Janamejaya, and after him was transferred to Vasu Chaidyoparichara, eighth descendant from Kuru, clearly shows that the reference in the story is to the ancestor of the pāṇḍavas.

The *Purāṇas* and the *Mahābhārata* do not associate Janamejaya, the descendant of the Pāṇḍavas, with any guilt. The descendant of the Pāṇḍava is credited with the performancs of the *Sarpasatra* and not an *Aśvamedha*. The *Aśvamedha* started by the later Janamejaya was not completed.

CRITICISM

The scholars like F.E. PARGITER, P.L. BHARGAVA and D.P. MISRA have tried to reconstruct the traditional history on the basis of the *Purāṇas*, the *Vedas* and the epics. This traditional history cannot be wholly relied upon unless corroborated by some contemporary evidence.

The *Purāṇas*, on which the traditional history is based, in present recession can hardly be placed earlier than the fourth century A.D. The same is the case with the epics which belong to the period not earlier than the second century B.C. As these *Purāṇas* and the epics relate the history of very earlier period for distant in time i.e., from 3000 B.C., they cannot be believed.

The traditional account based on the *Purāṇas* and the epics is vitiated by exaggeration, mythological details and religious bias. Besides there are divergencies in the texts of the different *Purāṇas*. These have been subjected to modifications, interpolations, revisions, etc. at different periods. Hence no definite texts of the respective *Purāṇas* are available, Sometimes they give mutually confusing and contradictory statements. They cannot be relied upon unless they are confirmed by some other independent contemporary evidence.

The authors of the *Purāṇas* and the epics have tried to patch up their genealogical fabric from various sources of different periods without any means of checking. If there are references to the rulers and events of the Vedic texts found in them, it does not mean that they are authentic for being earlier. Actually these seem to have been borrowed by the *Purāṇas* from the Vedic Sources.

The Bhārata war is regarded as the central landmark in traditional history because the fixing of the date of this event gives the idea of the dates of the rulers who ruled prior and subsequent to it. On the date of the Bhārata war, the superstructure of traditional history stands. Scholars like D.C. SIRCAR and H.D. SANKALIA[1] are of opinion that this war was a myth and devoid of little historicity. There is no reference to the Great War in the Vedic literature. The exact period when the *Mahābhārata* event took place was uncertain even to the people of ancient India. The Bhārata war has not been mentioned in the literature prior to fourth century B.C. Kurukshetra, the scene of the famous battle, does not figure in the Vedic literature as a battle field. When the historicity of the Bhārata war is doubtful, the traditional history based on this foundation cannot be relied upon.

1. *MMARDV*, pp. 4-8.

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The traditional history based upon the *Purāṇa* may be reliable to some extent up to the sixth century B.C., but afterwards it is doubtful. The fact is that it is not confirmed by any other independent source.

The traditional history of ancient India before the sixth century B.C. not confirmed by the archaeological evidence. The *Purāṇas* mention the ancient capitals Ayodhyā, Pratishṭhāna near Allahabad, Hastināpura, Vārāṇasī, Vaiśālī, etc. The history of the habitation of these above sites does not go beyond one thousand B.C., and these sites gradually developed into towns from about the sixth century B.C.

F.E. PARGITER has reconstructed the traditional history by establishing synchronisms coordinating the kings of different dynasties by collating the texts of the *Purāṇas*. He showed too much bias towards the evidence of the *Purāṇas* and ignored the others. P.L. BHARGAVA has tried to reconcile the Vedic and the Puranic traditions. He has also shown that the Purāṇas have confused the latest homes of the Principal Aryan tribes with their early settlements. The traditional history based on the agreement of Vedic and Puranic traditions may be correct, but the account purely based on the *Purāṇas* is doubtful. The period assigned to the events and the rulers does not appear to be correct because it is not confirmed by an other independent evidence.

D.P. MISRA has made an attempt to interpret this period of Indian history mainly in the light of the traditional accounts preserved in the Vedic and Puranic literature, and in the two epics, the *Rāmāyaṇa* and *Mahābhārata*. He also utilised the material of Iranian *Zend Avesta*. To interpret this period of history on the traditions preserved in the *Purāṇas* do not seems to be reasonable. As these were compiled in the fourth or fifth century A.D., they cannot be regarded as trustworthy source of history of such an early period. As far as the evidence of traditions about the Aryans in the Vedic literature and *Zend Avesta* is concerned, it is of much later time than that available in Asia Minor, Syria and Egypt. D.P. MISRA'S conclusions seem to be imaginary and sometimes forced. Manu and most of his immediate descendants appear to be myth. If they are regarded as real, they were Indian according to all ancient Indian literature and they have not come from outside. Further, they cannot be assigned such an early period. The Harappan civilization is different from the Aryan civilization. There is no definite evidence that the Aryans from India colonized Sumer and Egypt for the first time.

H.D. SANKALIA[1] thinks that the picture given in the *Rāmāyaṇa* is true of North India between 1st-2nd centuries B.C. and 5th century A.D. He further writes that there are clues in the *Rāmāyaṇa*, which if interpreted archaeologically, geographically and botanically enable us to say that the various incidents could have taken place in the present Uttar Pradesh, Bihar, the Chota Nagpur Plateau and the Eastern Madhya Pradesh, as early as 1500 B.C. but not earlier, though the probability is between 1500 B.C. and 700 B.C. However both these statements seem to be contradictory to each other. There is no concrete evidence to prove that persons and incidents mentioned and material life depicted in the *Rāmāyaṇa* actually correspond to a period between 1500 B.C. and 700 B.C.

1. *Prāchya Pratibhā*, II, 2, p. 1 ff.

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CHAPTER XVII

ANCIENT INDIAN LITERARY TRADITIONS AND ARCHAEOLOGICAL CULTURES

Ancient Indian traditions are known to have preserved in the *Purāṇas*, the two epics and the Vedic literature. The difficulty about these literary works is that they are not definitely dated. The *Purāṇas* and the epics mention the names of the old dynasties, kings, *Ṛishis*, tribes, towns, etc. Inspite of their religious character, the *Vedas* mention tribes or people among the Aryans and non-Aryans with their prominent kings or chiefs. They throw indirect light on the material aspects of the people. In India, archaeolagical excavations have been conducted at various sites, of which, some are pre-Harappan, while others are either Harappan or post-Harappan. Some of these sites have been dated by C-14 method. The archaeological evidence, however, cannot confirm the literary evidence because no written document identifying these cultures with certain names of tribes mentioned in ancient Indian literature has so far been discovered. This evidence simply confirms the antiquity of the sites about which there are references in ancient Indian literature. The question is how to interpret or support the account of the Vedic and Puranic literature archaeologically.

COMPARATIVE VALUE OF THE ARCHAEOLOGICAL AND LITERARY SOURCES

Scholars hold different views on the comparative value of the archaeological and literary sources.[1] Archaeologists like R.E.M. WHEELER, S. PIGGOT and D.H. GORDON treat the literary evidence with distrust. L. Wooley[2] attaches little importance to literary evidence when not supported by archaeological data. While R.E.M. WHEELER[3] considers the search for literary evidence in support of archaeological date as a great risk. According to S. PIGGOT,[4] the literary and philological evidence is a dangerous ground full of quick sands and pitfalls. D.H. GORDON[5] condemns literary evidence by stating that the major portion of the *Mahābhārata* and the *Purāṇas* provides little except fuel for the blaze of controversy. D.D.

1. *SIIPHOI*, pp. 102-103.
2. *History of Mankind, Cultural and Scientific Development*, Vol. I.
3. *AI*, III, pp. 81-82.
4. *Prehistoric India*, p. 241.
5. *The Prehistoric Background of Indian Culture*, Introduction, p. 2.

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KOSAMBI goes to the length of stating that archaeology alone can supply any reliable data for the study of ancient culture.

SRINIVASACHARI observes, "Archaeological material can at best furnish only what may constitute the dry bones of history, only such a sequence of occurrence and priority and posteriority in point of time and the general condition of civilization of the people whose handiwork is subjected to examination". R.C. MAJUMDAR says, "The archaeologist is too much obsessed with outward manifestations, as a purely literary man is likely to be too much occupied with the inner conception of man. A true historian must take cognizance of both and collect his data after a proper and critical analysis from archaeological as well as literary evidence, as the only evidence to the exclusion of the other. The right approach is to supply the necessary corrective to both these extreme views and draw up the picture of ancient India after a proper valuation of all available evidence. The exclusion of literary evidence would mean restriction of culture only to the external manifestation of man's activities ignoring the mental and moral make-up". H.D. SANKALIA expresses a similar view when he says: "In a country like India which has got very, very ancient traditions preserved in its *Purāṇas*, the two epics and the Vedic literature, one should not overlook such possibilities, even though a large numder of scholars would regard the *Purāṇas* and the epics as purely imaginary. I think that these works, however much inflated, do contain an element of truth, and particularly the lists of various ruling dynasties. They may be inflated, but names of the dynasties and other essentials should be true and approximate to truth. It is in this way that we can give some form to the Puranic dynasties, whereas our potteries may be given some individuality".

INTERPLETATION OF ANCIENT LITERARY TRADITIONS IN THE LIGHT OF ARCHAEOLOGY BY A.S. ALTEKAR

A.S. ALTEKAR[1] has suggested that the Aryans came into India and established their kingdom in 2000 B.C., and the same would be the beginning of the Vedic Age. The hymnal activity started in 2000 B.C. and the canon was being fixed in 1100 B.C. The Vedic Age can therefore be well placed between 2000 B.C. to 1100 B.C. They lived together with the Harappans for about five or six centuries i.e. up to 1400 B.C. There is the possibility of the Aryan settlements being carved at Banaras, Vaiśālī, Videha and Māhishmatī within two hundred years of the entry of the Aryans into India i.e. by 1800 B.C.

A number of battles must have been fought on the bank of the river Sarasvatī between the Aryans and the Harappans. After sometime, the territory was occupied and eventually the basin of this river became the centre of the Aryan culture, as a number of sacrifices are described as being performed on its bank. The exploratory expedition of A. GHOSH undertaken in 1951 gave clear evidence of the Harappan settlements and also of the Aryan ones belonging to a slightly later period.

1. *PIHC*, Twenty Second Session (1959), Presidential Address, pp 8-34.

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In many places of ancient Kosala like Śrāvastī and Ahichchhatra, Painted Grey Ware associated with the Aryans has been found. At hastināpura, painted Grey Ware, going back to the time of the Bhārata war, was found.

A Nāga kingdom flourished at Māhishmatī (Maheshwar) on the Narmadā; the Haihaya Aryans subdued it by 1800 B.C. and established their power in Narmada Valley. The way to Māhishmatī may have been via Bikaner, Ajmer and Ujjain as Painted Grey Ware associated with the Aryans has been found along with route though not in regular strata. The excavation carried out at Maheshwar by H.D. SANKALIA has revealed a special pottery which belongs to a period between 1700 B.C. and 1100 B.C.

ATTEMPT BY H.D. SANKALIA

P.L. BHARGAVA[1], A.D. PUSALKER[2] and H.D. SANKALIA[3] relying on the literary evidence of the *Vedas* and the *Purāṇas* place the date of Vedic culture much earlier. P.L. BHARGAVA by correlating the Vedic and Puranic data thinks that the Aryans came to India under Manu Vaivasvata and after the great Flood, from somewhere in the north and settled in the Saptasindhu region in about 3000 B.C. On the basis of C-14 dates now available for a number of excavated sites and P.L. BHARGAVA's chronological theory, H.D. SANKALIA[4] seems inclined, though hesitatingly, to regard all the proto-historic phases from the Harappan down to the P.G. Ware, as belonging to the Aryan civilization. To justify this hypothesis, he has sub-divided this long span, approximately from 3000 B.C. to 1000 B.C. into the following sub-phases :

1.	*C.* 3000 B.C. Early Aryan habitation in Saptasindhu	Indus or Harappan Civilization.
2.	*C.* 2500 B.C. Aryan Expansion in the Gangetic valley and Gujarat (Saurashtra).	Spread of Indus civilization in the gangetic Valley and Saurashtra.
3.	*C.* 2000 B.C. First break-up of the five Aryan tribes and dispersal from the Saptasindhu.	(a) Madhya Pradesh Chalcolithic (b) Banas or Ahar Culture. (c) Neolithic Culture of the Deccan.
4.	*C.* 1500 B.C. Further Expansion eastward and southwards.	(a) Jorwe-Nevasa Cultures. (b) Sonepur, Rajar Dhibi. (c) Rangpur. (d) Somnath.
5.	*C.* 1000 B.C. The Bhārata War.	Painted Grey Ware.

PRE-HARAPPAN AND HARAPPAN CULTURE

If the beginning of Vedic Period is ascribed to 3000 B.C., the pre-Harappan Culture (*C.* 2700-2400 B.C.) also comes under this period. In India, the remains of this culture are found at Amri, Kot-Diji, Mohenjodaro and Gomla in Sind; Harappan in Punjab; Kalibangan in North Rajasthan and Lothal in Gujarat.

1. *IITVA*, p. 261-270.
2. *ABORI*, XVIII, 1937, *TVA*, p. 270.
3. *IP*, p. 226.
4. *Ibid.*

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Some scholars regard Harappan Culture also to be (*C.* 2350-1750 B.C.) of Aryan origin. The Vedic hymns were being composed for several centuries earlier. The religion of the Harappan people represents a later phase of the Rigvedic Culture. People of Lothal and Kalibangan during the Harappan period were fire worshippers. Several small brick enclosures at Lothal are suspected to have been used for fire worship and one with remains of animal sacrifice. A brick enclosure for fire worship was built in the acropoles. Even at Kalibangan, a noteworthy feature of the house was the occurrence of oval or rectangular 'fire places' at different levels. The practice of fire worship was specially prevalent among the Vedic Arpans. The knowledge of writing displayed by the citizens of Mohenjodero by their seals shows a later phase than the Rigvedic age when writing was not known. The '*pur*' in the *Ṛigveda* has been interpreted by some scholars as referring to the fortified cities of Mohenjodaro, Harappa, Lothal, etc. On the basis of the Puranic evidence, D.P. MISRA[1] also looked upon the Harappan Civilization as Aryan to which their Asura branch had made its special contribution. This Asura branch of the Aryan people had discarded the nomadic way of life and settled down as agriculturists earlier than the other branches of the *Devas*. The Bhṛigus, who acted as the priests of the Asuras for several generations, were skilled craftsmen.

NEOLITHIC CULTURES OF KASHMIR AND SOUTH INDIA

Recently UMAPAD SEN propounded the view that the Rigvedic Aryans lived in Kashmir between 3500 B.C. and 3000 B.C. The *Ṛigveda* does not mention the river Sindhu or the Indus. Sindhu in this *Veda* stands for the sea and a river in the sky (the galaxy). During the Brāhmaṇa period, the Aryans descended into the Eastern Punjab and gradually spread eastwards. Archaeologically, the only thing one can credit these Rig-Vedic Aryans would be the Neolithic habitations on the Karewa terraces.

Among the Neolithic sites of South India, the important excavated sites are Brahmagiri, Sangankallu, Piklihal, Maski, Nagarjunakonda, Utnur, T. Narsipur and Tekkalkota. The maximum time spread of the C-14 dates of the Southern Neolithic culture is *C.* 2500-1000 B.C. The time assigned to the Southern Neolithic Culture is obviously overlapping with that of the Harappan culture. There appears to be contact between these two cultures. ALLCHIN advocates Iranian or West Asia origin of this culture. The region of Iran or West Asia was inhabited by the Aryans during this period.

CHALCOLITHIC CULTURE

The Chalcolithic culture of India may be divided into six regional groups: (1) The Ahar or Banas Chalcolithic Culture, (2) Madhya Pradesh Chalcolithic Culture, (3) Northern Deccan Chalcolithic Culture, (4) The Neolithic Chalcolithic Culture of the Deccan, (5) Chalcolithic Culture of Gangetic Doab and (6) Eastern Chalcolithic Culture. The Chalcolithic Culture is known to have covered a period from *C.* 1750-1000 B.C. Some Scholars postulate two waves of Aryans to India, the first in 1753 B.C. and the second in 1000 B.C. S. PIGGOT[2] identified the first wave

1. *SITPHOI*, p. 83.

2. *Prehistoric India*, p. 251.

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of the Aryans with the destroyers of Harappa Civilization at a time when the Chalcolithic Culture began. G.R. SHARMA[1] has also shown on the basis of Indian linguistic, literary and archaeological evidence that Aryans came to India in two major waves. LALLANJI GOPAL[2] finds that the Aryans in early Vedic period knew only '*ayas*' copper but not iron.

B.P. SINHA[3] and D.P. AGRAWAL[4] tried to identify Banas Culture with the Aryans. There is closeness of Banas Culture in time and space to the Harappans. Folk migrations from Western Asia in the first centuries of the second millenium and the end of the Harappans by the middle of eighteenth century B.C. and, finally the sudden emergence of Banas Culture about that time cannot be explained by any other hypothesis. Banas Culture traits show much borrowings from the Harappans. A spread of Black and Red Ware tradition in the Gangetic Doab and Bihar in Pre-Painted Grey Ware and Pre-N.B.P. ware contents respectively supports this view. Vedic literature does not mention any Aryan or non-Aryan dynasty or tribe ruling in or inhabiting the Banas Valley in Southern Rajasthan. F.E. PARIGTER, however, on the evidence of the Puranic evidence states that the large Yādava kingdom appeared to have been divided among Sātvats' four sons and that one of these *viz.* Devavṛadha, and his son and descendants reigned at Mārtti-kāvata, the first being connected with river Parnāsa (Banas). F.E. PARGITER calls this region a Śālva country. Thus this Ahar or Banas Culture may be broadly attributed to the Yādavas.[5]

Malwa Chalcolithic Culture and Northern Deccan Chalcolithic Cultures (Nevasa and Jorwe) have been suggested to be connected with the Haihayas, a branch of the Aryans on the evidence of the *Purāṇas*. These cultures can represent only subsequent stages of Aryan colonization. Rāma, whose reign is dated 1500 B.C.,[6] was a great king according to the story of the *Rāmāyaṇa*. He is known to have spread Aryan ideas and institutions far and wide in the South. However, there is a legend which says that Agastya, an Aryan sage after crossing the Vindhyas, had established his headquarters at Akola on the Pravara.[7] The main culture of the Gangetic region during this period was O.C.P. (Ochre Coloured Pottery) Culture. Some scholars think that copper hoards found in this region were associated with it, and they ascribe copper hoards to the Aryans.[8]

It is believed that the Chalcolithic Culture should be attributed to the Nāgas, Sabaras, Pulindas, etc. who are, according to the *Purāṇas*, the original inhabitants of India.[9] The *Purāṇas* and other literature, do speak of the Bhils, Nishādas, and other tribes inhabiting these regions. However no such reliance can be placed on the *Purāṇas* because they are of a very late period. The archaeological excavations have not proved their genuineness because no written record confirming to the account of the *Purāṇas* has been discovered.

1. *The Excavations at Kausambi.*
2. *Jour. of Andhra Hist. Res. Soc.*, 1962-63, pp. 28-34.
3. *JBRS*, Vol. XLVI, p. 60.
4. *Curr. Sci.* March 5, 1966, 35, 5, pp. 114-117.
5. *IP*. pp., 224-225.
6. *COAI*, p. 175.
7. *SPPIP*, p. 558.
8. *JISOA*, IV, 1936, pp. 87-113; *AI*, 7 pp. 20-39.
9. *EMN*, p. 252; IP, p. 227.

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CRITICISM OF THE ABOVE VIEWS

To fix the date of the Vedic Culture in 3000 or 2000 B.C. by some scholar simply on the basis of genealogies of the *Purāṇas* counted from the Bhārata war and of the evidence of archaeology does not seem to be correct. The *Purāṇas* compiled in the fourth or fifth century A.D. cannot be regarded as the trustworthy source about the Āryans who lived much earlier. Further, the Bhārata war itself has been proved to be a myth—by some scholars.[1]

In comparison with Asia Minor, Syria and Egypt, there is no contemporary evidence associating the Aryans with India. The evidence of the *Vedas* is much later. On the evidencs of the *Purāṇas*, it is not possible to think that the Aryans migrated to these regions from India. Nothing can be said about the language of the Harappan script which has not yet so far been deciphered.

The material aspect of the people revealed from the study of the pre-Harappan Culture (*C.* 2700-2100 B.C.), Harappan culture (*C.* 2350-1750 B.C.), Neolithic Culture of Kashmir and South, Chalcolithic Culture of Madhya Pradesh, Banas, Northern Deccan, Deccan, Gangetic Doab and Eastern India (*C.* 1750-1000 B.C.) does not seem to tally with that of the Vedic Culture. The Vedic Culture appears to be rural. The cremation but not the burial was the special trait of this culture. Developed iron industry and swift moving horses are the characteristics of Vedic Culture, without which, Vedic Aryans would not have established their supremacy over the natives. Both these are found to be absent in the above cultures.

The *Ṛigveda* contains the geographical data as to the gradual expansion of the Aryans and their settlements in Northern India. The term '*Saptasaindhavah*' as used in the *Ṛigveda* means their definite country. These are five rivers of the Punjab along with the Indus and the Sarasvatī. It means the Punjab and the neighbouring regions. The river Sarasvatī described as par-excellence was their central habitat. In the Later Vedic period, the centre of the culture shifted to Kurukshetra and Madhyadeśa. The land of the Yamunā and the Gaṅgā came into prominence. Kośala (Oudh), Kāśī, and Videha (North Bihar), rose as great Aryan centres in the east. Magadha (South Bihar) and Aṅga (South-eastern Bihar) had not yet been Aryanised and their inhabitants were regarded as strangers. These above cultures known from the archaeological excavations do not appear to be related to this specific region chronologically.

The tumult and upheaval caused by the Thraco-Phrygian invasion of Asia Minor in 1200 B.C. led to the widespread folk movements in all directions. Its effect on the Aryan immigration into India can on this ground be suggested. This also fixes the beginning of the Vedic age from about 1200 B.C.

Linguistically, the *Ṛigveda* appears to have been compiled in about 1000 B.C. The Aryans came to India one or two hundred years earlier i.e. 1100 or 1200 B.C., and their hymnal activity started from this period. Thus the date of the Vedic culture is from about 1200 B.C. to 600 B.C. Archaeologically, this fits well with the Vedic culture. From the excavations, it is clear that both horses and iron were well known during this period.

1. *MMARDV*, pp. 4-8.

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Painted Grey Ware and Black and Red Ware of this period are found in the region where the Aryans settled. At some places, these wares are noticed in association with iron. The epicentre of the Painted Grey Ware was in the Gaṅgā-Yamunā Doab, and the main excavated sites are Bhagwanpura, Hastināpura, Mathurā, Alamgirpur, Kauśāmbī, Atranjikhera and Ahichchhatra. Several sites have been discovered in the Sarasvatī Valley and in the Dṛishadvatī Valley. Occasional sherds have also been found at other places in Rajasthan such as Chosala,[1] Gondi,[2] Bairat,[3] Kama,[4] Noha[5] and Bhagwanpura[6] near Bhilwara. A few sherds of the painted Grey Ware have been discovered in the core of the ramparat at Ujjain.[7] The Bhind region[8] has also yielded many Painted Grey Ware sites. This may prove the migration of the PaintedG-rey-Ware people to different places, and also the mutual cultural contact.

At some of the above sites, iron objects have been discovered in association with the Painted Grey Ware. The most important site is Atranjikhera which yielded not merely the most prolific data on the use of iron in the times of the Painted Grey Ware, but the earliest date so far known of the Painted Grey Ware itself along with iron, namely 1025+110 B.C.[9] As this site yielded the iron tools and implements practically from all the layers, it proves that the use of iron was common throughout the Painted Grey Ware period. Iron objects have been found in association with Painted Grey Ware at Noh,[10] Ahichchhatra,[11] Hastināpura,[12] Alamgirpur,[13] Kauśāmbī,[14] Bairat,[15] and Ujjain.[16]

Iron objects have been discovered in association of the Black and Red Ware at Eran,[17] in District Sagar, Madhya Pradesh; Bakash.[18] District E. Khandesh, Maharashtra; Bahal[19] in Maharashtra; and Nagda,[20] District Ujjain, Madhya Pradesh. The occurrence of iron objects at these sites in period II is dated 750-500 B.C. In addition to the evidence of the above sites, iron objects have been found along with the Black and Red Ware at Nagal,[21] District Broach, Gujarat; Mahishdal,[22] District Birbhum West Bengal; Chirand,[23] District Saran, Bihar; Sonpur,[24] District, Gaya, Bihar; Sohagaura,[25] District Gorakhpur, Uttar Pradesh and Rajghat,[26] District Varanasi, Uttar Pradesh.

The region of the Painted Grey Ware and the Black and Red Ware respectively coincides that of the settlement of the Aryans during the period between 1200 and

1. *IAR*, 1958-59, p. 45.
2. *Ibid*, p. 45.
3. *Ibid*., 1953-54, p. 61.
4. *Ibid*, 1957-58, p. 33.
5. *Ibid*,
6. *Ibid*, 1955-56, p. 11.
7. *IP*, p. 229.
8. *Potteries in Ancient India*, p. 186.
9. *IAR*, 1963-64, 1964-65.
10. *Ibid*, 1963-64, 1964-65.
11. *Ibid*.
12. *AI*, Nos. 10 & 11, 1254-55, pp. 13-97, 9.
13. *IAR*, 1958-59, pp. 54-55.
14. *The Excavations at Kauśāmbī*, p. 18.
15. *IAR*, 1953-54, p. 61.
16. *Ibid*, 1956-57, pp. 20-28, 1957-58, pp. 32-36.
17. *Ibid*, 1960-61, pp. 17-18.
18. *Ibid*, 1954-55, p. 13.
19. Wheeler: *Early India and Pakistan*, p. 146.
20. *Ibid*, pp. 139, 146; *IAR*, 1955-56, p. 12.
21. *IAR*, 1961-62. pp. 11-12.
22. *Ibid*, 1963-64.
23. *Ibid*, 1962-63, 1963-64.
24. *Ibid*, 1961-62, p. 4.
25. *Ibid*, p. 56.
26. *Ibid*, 1962-63, p. 41, 1963-64.

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600 B.C. The other objects discovered in the excavated sites of these two wares throw some light on the material aspect of the people.

The culture of the Painted Grey Ware and the Black and Red Ware people seems to be the iron-using culture. The discovery and the use of iron brought about a revolution in the economic condition of the people. Iron played a great role in colonising the dense forest areas like that of Gangetic Doab. A large number of settlements in the form of villages were established. The houses appear to have been of mud walls. Mud bricks and baked bricks were generally not used. As there is no occurrence of the Harappa relics along with these two wares together any where, these two cultures never came into contact with each other. The people of this culture generally broke new ground to build their villages and did not utilise any existing mounds for the purpose. They began settlement either with Grey Ware or Black and Red Ware.

This culture had an agricultural society in which cattle breeding and farming formed important occupations of the people. People were both vegetarian and non-vegetarian. The people ate rice as it was found in excavations at Hastināpura. Wheat must have been eaten as it was known from much earlier times. This diet was supplemented with beef, pork, mutton, venision and even horse's flesh. This is indicated by the occurrence of large quantities of bones of these animals. The cow, fox, buffalo, pig, goat, sheep and horse were domesticated animals. Cooking was done on simple one-mouthed *chūlhā* with horse-shoe like sides. People wore ornaments-necklaces, pendants, ear-rings and bangles-made of semi-precious stones (chert, agate, jasper and carnelian), bone, terracotta (discs, simple and decorated), cylandrical objects of chert and jasper and glass bangles. Spinning was done on one and two holed terracotta discs. Clothes like *dhotī* as a lower garment made of cotton were put on both by men and women. For wearing, double pointed bone pieces were used. Of the copper-objects, Hastināpura has yielded an arrow-head, an antimony rod, a nail-parer and a borer.

B.B. Lal[1] has tried to associate the Painted Grey Ware people with the Aryans tentatively and provisionally on the literary and archaeological sources.

1. According to literary evidence, the Vedic Aryans were in occupation of the fertile plains of Southern Punjab, and the now dessicated northern Rajasthan and that, as time passed, they moved eastwards into the Gaṅgā basin. The Painted Grey Ware is found at all these places as past relics of the Aryans in excavations. D.P. Misra[2] like some other scholars is of opinion that the pottery designated as Painted Grey Ware was brought into India by the Bhāratas.

2. There is distribution of Painted Grey Ware on the sites bearing the names occurring in the *Mahābhārata*.

3. The Painted Grey-Ware with its affinities to that from Shah Tepe (Iran) may suggest the first wave of the Aryans who settled for a longer time in the Sarasvatī Valley. Since the Painted Grey Ware is not connected with the relics of any previous culture known to India, it is reasonable to suppose that its authors did not spring out of the Indian soil but came from outside as the Aryans.

1. *AI*, Nos. X and XI, pp. 150-151. 2. *SITPHOI*, p. 133.

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4. Its occurrence stratigraphically above the remains of the Harappans as depicted at Rupar in Ambala (Punjab), Alamgirpur in District Meerut (U.P.) and by inference in Bikaner region may prove that the authors of the Painted-Grey Ware Culture were Aryans.

5. The cultural life obtaining among the users of the Painted Grey Ware is extremely simple. Limited excavations have enabled us to know about their pottery, mud houses, food consisting of beef, pork and venision, use of copper and iron and the horse. The life of the Vedic people was indeed simple pastoral country life with belief in the forces of nature.

6. The *Atharvaveda* mentions pottery as *Nīlalohita* meaning bluish red and the blue-red or reddish blue or blue and red as the case may be. B.B. LAL has adduced parallels from Afghanistan, Shah Tepe and Thessaly. Such pottery has been observed in Lakhiyopir to the north of Karachi in Pakistan and Hasanlu in Persian A zarbaijan. This pottery is dated to 1000 to 800 B.C. and is attributed to Indo-Aryans.

It seems that the Aryans after their entry into India introduced Painted-Grey Ware and iron. Black and Red Ware was already prevalent during this time. In the words of Y.D. SHARMA,[1] the study of the Aryan expansion must be made in the light of the fully developed iron industry, and swift moving horses, without which this militant race would not have established its supremacy over the *Asuras*, *Dāsas*, etc. In the *Ṛigveda*, we do not know of any cultural phase other than that of the Painted Grey Ware and Black-and-Red Ware which are associated with a fully developed iron industry, and the image of culture, which emerges from the study of the *Ṛigveda*, seems to correspond more to the culture of painted-Grey Ware and Black-and-Red Ware Age. Some scholars like R.E.M. WHEELER[2] consider Painted Grey Ware Culture the second wave of Aryan migration to the India from the west.

It is thus clear that archaeology enables us to have a glimpse of how the people lived in various parts of India, but so far it has not been proved who these people were. The reason is that no readable written document of this type is discovered, and old literary works are not definitely dated. Only a tentative attempt has been made above to interpret the archaeological cultures in the light of ancient Indian literary traditions.

1. *IP*.

2. *Early India and Pakistan* ,p. 28.

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APPENDIX I

THE GEOLOGICAL TIME-SCALE[1]

	Maximum known thicknesses (Thousand of feet)	Duration of Period (Millions of Years)	Total from Beginning	Distinctive Life
Recent	6			Modern Man
Pleistocene		2 or 3	2 or 3	Stone-Age Man
Pliocene	15	9 or 10	12	(Great variety of Mammals (Elephats widespread
Miocene	21	13	25	(Flowering plants in full (development (Ancestral dogs and bears
Oligocene	26	15	40	Ancestral pigs and apes
Eocene	30	20	60	Ancestral horses, cattle
Paleocene	12	10	70	and elephants appear.
Cretaceous	51	65	135	(Extinction of Dinosaurs and Ammonites (Mammals and Flowering (plants slowly appear
Jurassic	44	45	180	(Dinosaurs and Ammonites (abundant (Birds and Mammals appear
Triassic	30	45	225	(Flying reptiles and Dinosaurs (appear (First corals of modern types
Permian	19	45	270	(Rise of Reptiles and (Amphibians. (Conifers and beetles appear
Carboniferous	46	80	350	(Coal forests (First Reptiles and winged (insects.

[1]ARTHUR HOLMES : *Principles of Physical Geology* p. 157.

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Devonian	38	50	400	(First Amphibians and (Ammonites (Earliest trees and spiders (Rise of Fishes
Silurian	34	40	440	(First spore-bearing land (plants (Earliest known coral reefs
Ordovician	40	60	500	(First fish-like Vertebrates (Trilobites and Graptolites (abundant.
Cambrian	40	100	600	(Trilobites, Graptolites, (Brachiopods, Molluses, (Crinoids, Radiolaria, (Foraminifera. (Abundant fossils first appear.
Late Precambrian Earlier Precambrian	}	(not defined)		(Scanty remains of (primitive invertebrates (sponges, worms, algae, (bacteria Rare algae and bacteria back to at least 3000 million years for oldest known traces of life

Undated interval between about 3,400 and 4,500 million years ago Origin of the Continental Crust about 4,500 million years ago.

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APPENDIX II

TENTATIVE CHRONOLOGICAL TABLE[1]

PREHISTORY

Early Palaeolithic

Geological Period	Industry/Culture	Sites/Regions
I. Late Early Pleistocene	Flakes	Kashmir and the Punjab.
II. Middle Pleistocene *c.* 5,00,000 years B.P.	Chopper/chopping or Sohan Culture and Handaxe Culture	Punjab Whole India, including Kashmir, except Sind and Kerala.
III. Late Pleistocene *c.* 50,000 B.P. to 20,000 B.P.	Middle Paleolithic Scraper/Borer Culture	Whole India, except Kerala and Nepal
IV. Late Pleistocene *c.* 20,000 B.P. to 10,000 B.P.	Upper Paleolithic Blade and Burin Culture.	i. Kurnool and Chitoor (Andhra) ii. Sholapur Doab (Karnatak) iii. Singhbhum (Bihar) iv. Allahabad (U.P.) v. Pavagadh (Gujarat) zi. Ahmednagar and Jalgaon (Maharashtra) vii. Bhopal (M.P.)
V. Holocene *c.* 8,000 B.C. to 2,000 B.C.	Mesolithic Microliths	i. Sarai Nahar Rai (U.P.) ii. Adamgarh (M.P.) iii. Birbhanpur (W.B.) iv. Sangankal (Andhra-Mysore) v. Teris (Tamilnadu) vi. Langhanaj (Gujarat) vii. Bagor (Rajasthan) viii. Patna (Maharashtra)

1. *SPPIP*, pp. 15-16.

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PROTOHISTORY

VI. *c.* 4000 B.C. to *c.* 2,000 B.C.	Neolithic	i. Baluchistan ii. Kashmir. iii. Assam (Meghalaya)
VII. *c.* 2500 B.C. to *c.* 1000 B.C.	Neolithic Chalcolithic	i. Andhra ii. Mysore-Karnatak iii. Tamilnadu iv. Bihar. v. Kashmir. vi. Maharashtra.
VIII. *c.* 2,000 B.C. to *c.* 700 B.C.	Chalcolithic	i. Madhya Pradesh ii. U.P. iii. Bihar iv. Maharashtra.
IX. *c.* 2,000 B.C. to *c.* 1,000 B.C.	Copper Age Ahar or Banas Culture	i. S.E. Rajasthan.
X. *c.* 2,500 B.C. to or *c.* 2,350 B.C. to *c.* 1,750 B.C.	Indus Civilization	Sind, Baluchistan, Punjab, Western, U.P., N. Rajasthan, Kutch, Saurashtra, Coastal Gujarat.
XI. *c.* 1,000 B.C. to *c.* 700 B.C.	Early Iron Age	i. U.P. ii. Bihar iii. W. Bengal iv. Mysore v. M.P. vi. Maharashtra.

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APPENDIX III

RADIOCARBON AND INDIAN ARCHAEOLOGY[1]

TABLE I

The C –14 dates of Middle Stone Age (M.S.A.) and old Alluvium Sites

Sites		C-14 dates, based on half-life 5730 yrs in B.C.
Asla	TF-1178	8,085±125
Bardia Hill	TF-764 (b)	11,420±190
	TF-764 (a)	16,485±145
Belan	TF-1245	17,765±340
Dhom Dam	TF-1004	37,640±9200 −4245
Gargaon	TF-1111	8,360±155
Godavari Delta	TF-612	9,180±160
Hiran (Somnath)	PRL-30	19,480±690 −560
Inamgaon	TF-1177	17,340±360
	TF-1003	19,775+630
Mula Dam	TF-217	39,000
	TF-345	30,030+5715 −3340
Paithan	TF-891	17,075±660
Rati Karar	TF-967	31,750+1820 −1625

1. *Physics News*, Vol. 6, No. 4, Dcember, 1975

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TABLE II

C-14 Dates of Microlithic Sites

Sites	C-14, dates, based on half-life=5730 yrs., in years B.C.	
Adamgarh (M.P.)	TF-116,	895±105
Chirand (Bihar)	TF-445,	1650±100
Koldihwa (U.P.) (Neolithic)	PRL-101,	4530±185
	PRL-100,	5440±240
Langhnaj (Gujarat)	TF-744,	2040±110
Lekhahia (U.P.)	TF-417.	1710±110
	TF-419,	2410±115
Bagor (Rajasthan)	TF-1011, & 1012	3285± 90
	TF-1007,	3835±130
	TF-786,	4480±200
Sarai Nahar Rai (U.P.)	TF-1104,	8395±110
	TF-1356, & 1359	990±125

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TABLE III

C-14 Dates of Neolithic Sites

Sites	C-14 dates, based on half-life=5730 yrs., in years BC	
Barudhih (Bihar)	TF-1099,	750±110
	TF-1100,	1055±210
	TF-1101,	595± 90
	TF-1102,	660± 90
Burzahom (Kashmir)	TF-15,	1535±110
	TF-129,	1825±100
	TF-13,	1850±125
	TF-14,	2025±350
	TF-127,	2100±115
	TC-123,	2225±115
	TF-128,	2375±120
Chirand (Bihar)	TF-1035,	1270±105
	TF-1127,	1375±100
	TF-1125,	1515±155
	TF-1033,	1540±110
	TF-1034,	1570±115
	TF-1033,	1580±100
	TF-1031,	1675±140
	TF-1032,	1755±155
Ghaligai (W. Pakistan)	R-377a,	1608± 50
	R-379a,	2355± 70
	R-379,	2422± 55
	R-380,	2376±140
Hallur (Mysore)	TF-573,	955±100[1]
	TF-570,	1105±105[1]
	TF-586,	1195±100
	TF-575,	1030±105
	TF-576,	1425±110
	TF-580,	1710±105
Kili Ghul Mohammad (W. Pakistan)	UW-61,	3470± 83
	P-524,	3690± 85
	L-180A,	3510±515

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Kodekal (Andhra)	TF-748,	2460±105
Palavoy (Andhra)	TF-700,	1540±100
	TF-701,	1965±105
Paiyampalli (Tamil Nadu)	TF-833,	1360±210
	TF-349,	1485±100
	TF-827,	1725±110
Sangankallu (Mysore)	TF-359,	1550±105
	TF-355,	1585±105
	TF-354,	1590±110
T. Narsipur (Mysore)	TF-413,	1495±110
	TF-412,	1805±119
Tekkalakota (Mysore)	TF-239,	1540±105
	TF-262,	1610±140
	TF-237,	1615±105
	TF-266,	1780±105
Terdal (Mysore)	TF-683,	1770±120
	TF-684,	1935±1200
Utnur (Andhra)	TF-168,	2040±115
	TF-167,	2050±115
	BM-54,	2295±155

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TABLE IV

C-14 Dates of Pre-Harappan and Harappan Sites

Sites	C-14 dates, based on half-life = 5730 yrs., in years BC.	
Amri (W. Pakistan)	TF-863,	2665±110
	TF-864,	2990±115
Balakot (W. Pakistan)	UCLA-1932A	3406±137
	UCLA-1923B	3334±77
	UCLA-1923C	3061±82
	UCLA-1942D	2386±82
Bara (Punjab)	TF-1204,	1845±155
	TF-1205,	1890± 95
	TF-1207,	1625± 90
Damb Sadaat	UW-60,	2220±165
	P-523,	2200± 75
	L180E,	2220±360
	L180C,	2220±410
	P-522,	2550±200
	L-180B,	2320±370
	UW-59,	2510± 70
Ghalighai (W. Pakistan)	R-378a,	192± 55
Gumla (W. Pakistan)	P-1812,	2248± 74
	P-1882,	2382±151
	(16694)	
Hathala (W. Pakistan)	P-1813,	2214± 62
	TF-154,	1820±115
	TF3-156,	1900±110
Kalibangan Pd.I. (Rajasthan)	TF-165,	1965±105
	TF-161,	2095±105
	TF-240,	1765±115
	TF-162,	2105±105

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	TF-162,	2105±105
	TF-241,	2255± 95
	TF-157,	2290±120
	TF-155,	2370±120
Kalibangan Pd.II (Raasjthan)	TF-143,	1665±100
	TF-946,	1765±105
	TF-149,	1830±145
	TF-150,	1900±105
	TF-605,	1975±110
	P-481,	2050± 75
	TF-153,	2075±110
	TF-25,	2090±115
	TF-943,	2225±115
	TF-152,	1770± 90
	TF-142,	1790±105
	TF-141,	1860±115
	TF-139,	1930±105
	TF-151,	1960±105
	TF-948,	1980±100
	TF-147,	2030±105
	TF-145,	2060±105
	TF-608,	2075±110
	TF-947,	1925± 90
	TF-163,	2080±105
	TF-607,	2090±125
	TF-160,	2230±105
Kot Diji (W.Pakistan)	P-195,	2100±140
	P-180,	2250±140
	P-179,	2330±155
	P-196,	2600±145
Lothal (Gujrat)	TF-19,	1800±140
	TF-23,	1865±110
	TF-29,	1895±115
	TF-26,	2000±125
	TF-27,	2000±115
	TF-22,	2010±115
	TF-133,	1895±115
	TF-136,	2080±135
Mohenjodaro (W.Pakistan)	TF-75,	1755±115
	P-1182A,	1865± 65
	P-1176,	1965± 60
	P.1178A,	1965± 60
	P-1180,	1995± 65

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	P-1179,	2085± 65
	P-1177,	2155± 65
Mundigak (Afghanistan)	TF-1120,	3145±110
	TF-1132,	2995±105
	TF-1131,	2755±105
Nindovari Damb (W.Pakistan)	TF-862,	2065±110
Rojdi (Gujarat)	TF-199,	1745±105
	TF-200,	1970±115
Surkotada (Gujarat)	TF-1304, & T 309	1805± 90
	TF-1301,	2000±135
	TF-1305,	2055±100
	PRL-85,	2315±135
	TF-1295,	1940±100
	TF-1297,	1790± 95
	TF-1294,	1780±100
	TF-1307,	1660±110
	TF-1311,	1780± 90

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TABLE V

The C-14 Dates of Chalcolithic Sites

Sites	C-14 dates, based on half-life=5730 yrs., in years B.C.	
1	2	
Ahar (Rajasthan)	TF-31,	1270±110
	TF-32,	1550±110
	TF-34,	1725±140
	TF-37,	1305±115
	V-56,	1875±100
	V-55,	1990±125
	V-54,	2000±100
	V-58,	2055±105
	V-57,	2145±100
Bagor (Rajasthan)	TF-1005, & 1006,	2110± 90
	TF-1009,	2765±105
Barakhera (M.P.)	PRL-111,	1315±110
Bharatpur (W. Bengal)	PRL-15,	1435±140
Chandoli (Maharashtra)	TF-43,	1040±105
	TF-42,	1170±120
	P-474,	1240±190
	P-472,	1300± 70
	P-473,	1330± 70
Chirand (Bihar)	TF-444,	715±105
	TF-334,	845±125
	TF-1029,	1050± 90
	TF-1028,	1540± 90
	TF-445.	1650±100
Eran (M.P.)	TF-326,	1040±110
	TF-324,	1270±110
	P-525,	1340± 70

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	P-528,	1050± 65
	P-526,	1280± 70
	TF-330,	1365±100
	TF-327,	1425±105
	TF-329,	1445±110
	TF-331,	1500± 95
Inamgaon (Maharashtra)	TF-923,	1025±170
	TF-996,	1070±185
	TF-922,	1345±100
	TF-1085,	1440±110
	TF-924,	1370±200
	TF-1087,	1405±105
	TF-1086,	1535±155
	TF-1000,	1375± 85
	TF-1001,	1565∓ 95
	PRL-59,	1350±110
	PRL-77,	1450±115
	PRL-133,	1370±110
	PRL-93,	1160±105
	PRL-94,	1155±120
	PRL-57,	1190±110
	TF-1330,	1225±105
	TF-1235,	1275± 95
	PRL-78,	870±115
	PRL-76,	1355±110
Kayatha (M.P.) (Deccan College)	TF-776,	1605±115
	TF-974,	1635±100
	TF-778,	1705± 95
	TF-777,	1780±100
	TF-780,	1835±100
	TF-779,	1840±110
	TF-781,	1880±105
Kayatha (Vikram University)	TF-679,	1300±135
	TF-676,	1305±105
	TF-401,	1335±105
	TF-402,	1380±100
	TF-405,	1465±100
	TF-397,	1500±100
	TF-398,	1675±100
	TF-678,	1685±100
	TF-399,	1675±100
	TF-396,	1730±100
	TF-680,	2015±110

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Malvan (Gujarat)	TF-1084,	800± 95
Mahishadal (W. Bengal)	TF-390,	855±100
	TF-391,	1380±105
	TF-392,	1085±110
Navdatoli (M.P.)	P-205,	1445±130
	TF-59,	1525±100
	P-240,	1600±130
	P-200,	1610±130
	P-475,	1610± 70
	P-201,	1645±130
	P-202,	1660±130
	P-476,	2300± 70
Nevasa (Maharashtra)	TF-40,	1250±110
	P-181,	1250±125
pandu Rajar Dhibi (W. Bengal)		1012±120
Prabhas Patan (Gujarat)	TF-1287,	2455±110
	PRL-90,	2410±115
	TF-1284,	1615±100
	TF-1286,	1755± 95
	PRL-92,	1990±100
	PRL-19,	1235±165
	PRL-91,	2020±170
	PRL-20,	1485±110
Sonegaon (Maharashtra)	TF-379,	1290± 95
	TF-383,	1330±100
	TF-382,	1340±110
	TF-380,	1375±110
	TF-384,	1565±110

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TABLE VI

Sites	C-14 Dates, based on half life=5730 yrs., in years BC	
Allahpur (U.P.)	PRL-81,	385± 95
Atranjikhera (U.P.)	TF-291,	535±100
	TF-191,	1025±110
Hastinapur (U.P.)	TF-83,	335±115
	TF-112,	375±100
	TF-90,	390±115
	TF-85,	505±130
	TF-91,	570±125
Khalua (U.P.)	PRL-67,	570±160
	PRL-68,	485±170
	TF-1228,	535± 95
Noh (Rajasthan)	TF-1144,	490± 90
	UCIA-703A,	605±260
	TF-993,	725±150
	UCLA-703B,	820±225

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MAPS AND ILLUSTRATIONS

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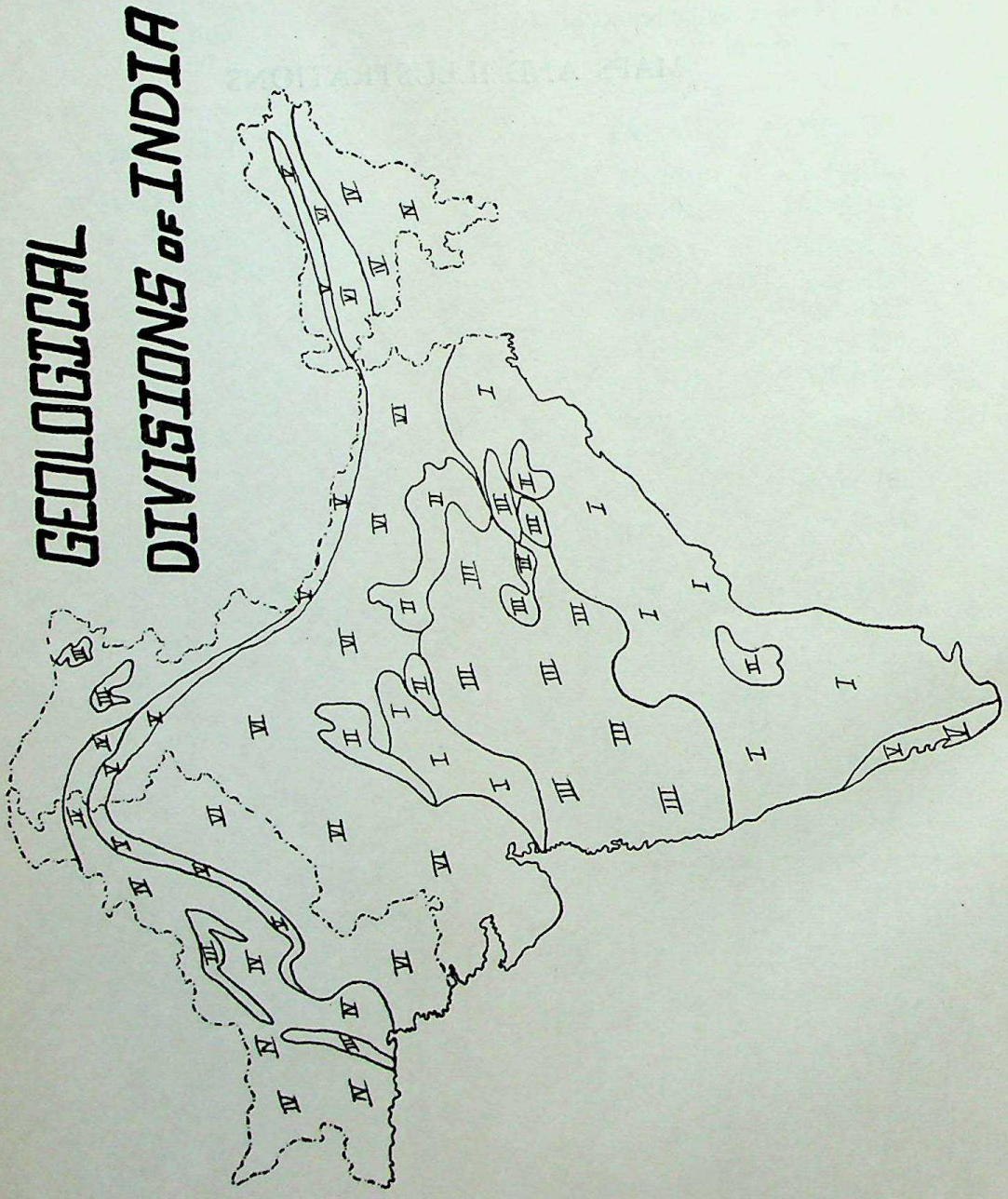

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GEOLOGICAL DIVISIONS OF INDIA

I. Pre Cambrian Era.
II. Palaeozoic Era.
III. Mesozoic Era.
IV. Caneozoic Era.
V. Tertiary Era.
VI. Pleistocene or Quarternary Era.

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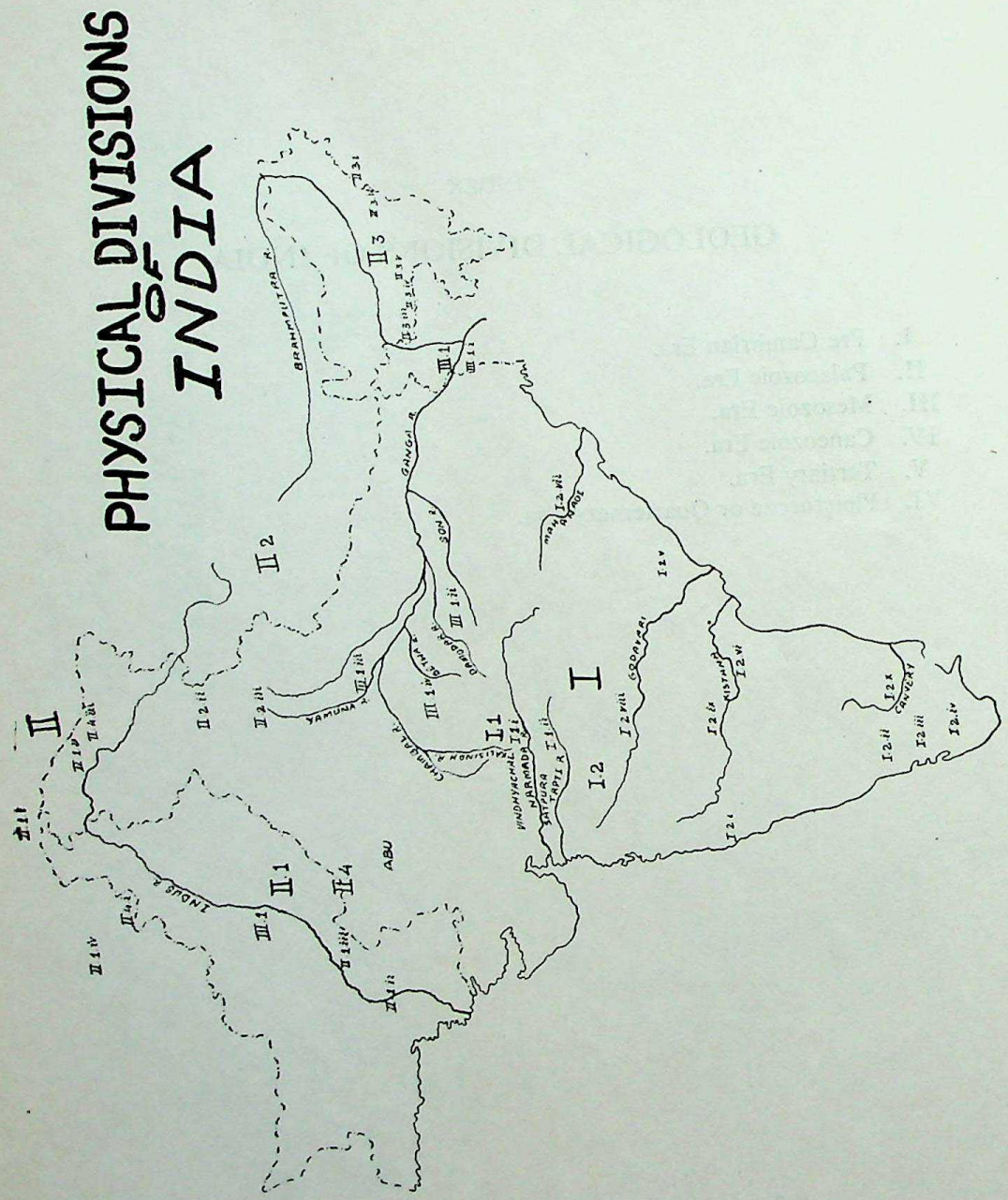

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PHYSICAL DIVISIONS OF INDIA

I. PENINSULAR REGION

The Narmada Valley divides it into two—

1. *The Central Indian Plateau.* It is bounded by the Aravallis and by the Vindhyas in the south. Its further extension in the east is locally known as Bundelkhand and Baghelkhand in Southern Uttar Pradesh and Chota Nagpur in Southern Bihar.

i. Narmada and ii. Tapti rivers.

2. *The Deccan Plateau* bounded by Satpura—

i. Sahyadri, ii. Nilgiri, iii. Annamalai, iv. Cardamom, v. Mahendragiri, vi. Anai Mudi highest peak, vii. Mahanadi, viii. Godavari, ix. Krishna and x. Kaveri.

II. THE HIMALAYAN REGION

1. *North-West India*

i. Pamir, ii. Kirthar, iii. Sulaiman, iv. Hindukush and v. Karakoram.

2. *Himalayas*

i. Himadri, ii. Himachala and iii. Siwaliks, Averest is the highest peak.

3. *Pūrvāchala*

i. Patkai Bum, ii. Naga Hills, iii. Garo, iv. Khasi, v. Jaintia, vi. Mizo, vi. Lushai.

4. *Passes*

i. Khyber, ii. Bolan, ii. Karakoram, iv. Shipkila, v. Nathula and vi. Bondila.

III THE GREAT PLAINS

1. *The Indus and the Ganga-Brahmaputra Plains*

i. Ganga-Brahmaputra.
ii. Son-Damodar.
iii. Ganga-Yumna.
iv. Chambal, Kalisind and Betwa.

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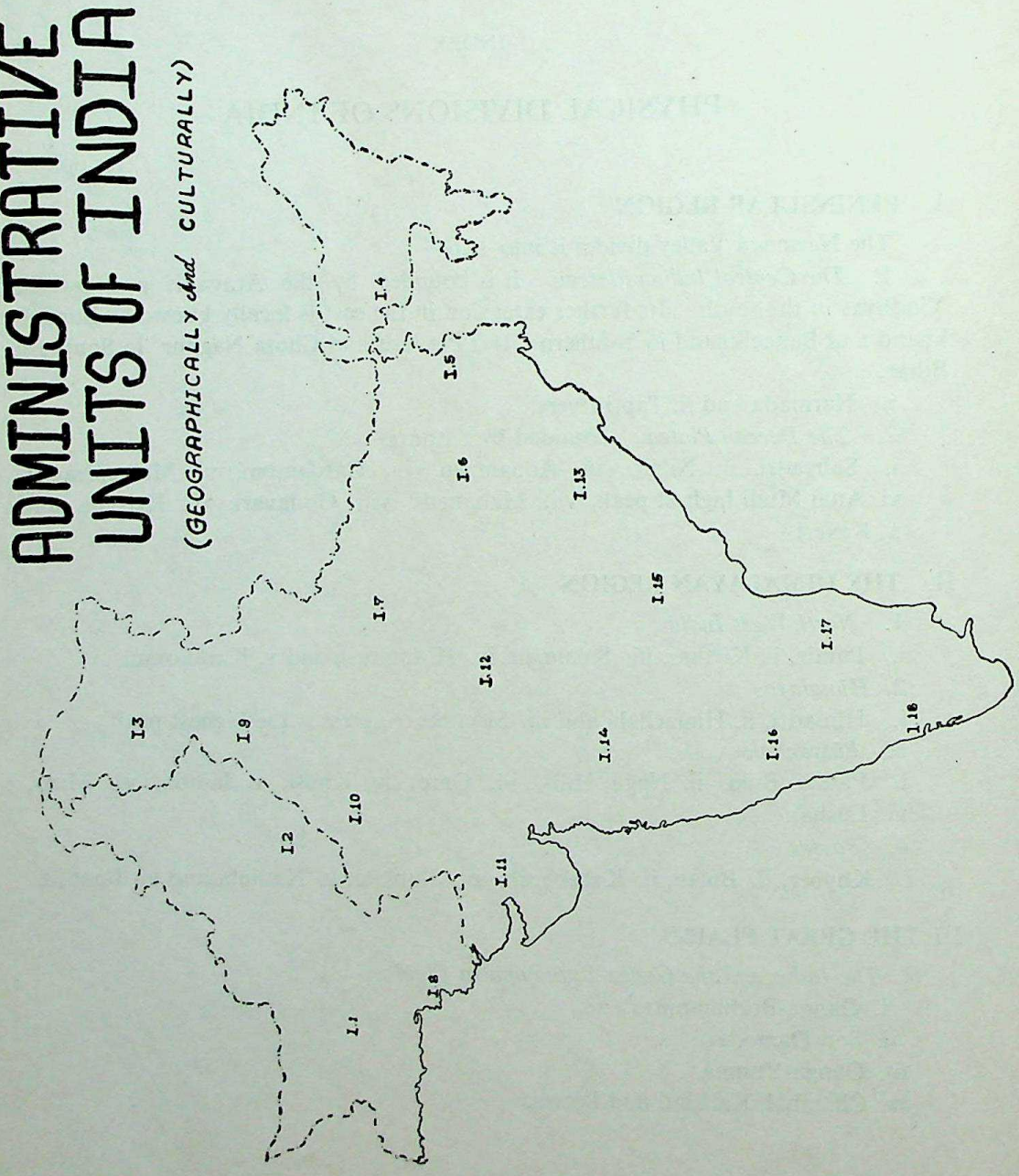

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ADMINISTRATIVE UNITS OF INDIA
(Geographically & Culturally)

1. ADMINISTRATIVE UNITS

1. Baluchistan, 2. North-West Frontier Provinces, 3. Kashmir, 4. Assam, 5. Bengal, 6. Bihar, 7. Uttar Pradesh, 8. Sind, 9. Punjab, 10. Rajasthan, 11. Gujarat, 12. Madhya Pradesh, 13. Orissa, 14. Maharashtra, 15. Andhra, 16. Karnataka, 17. Tamil Nadu and 18. Kerala.

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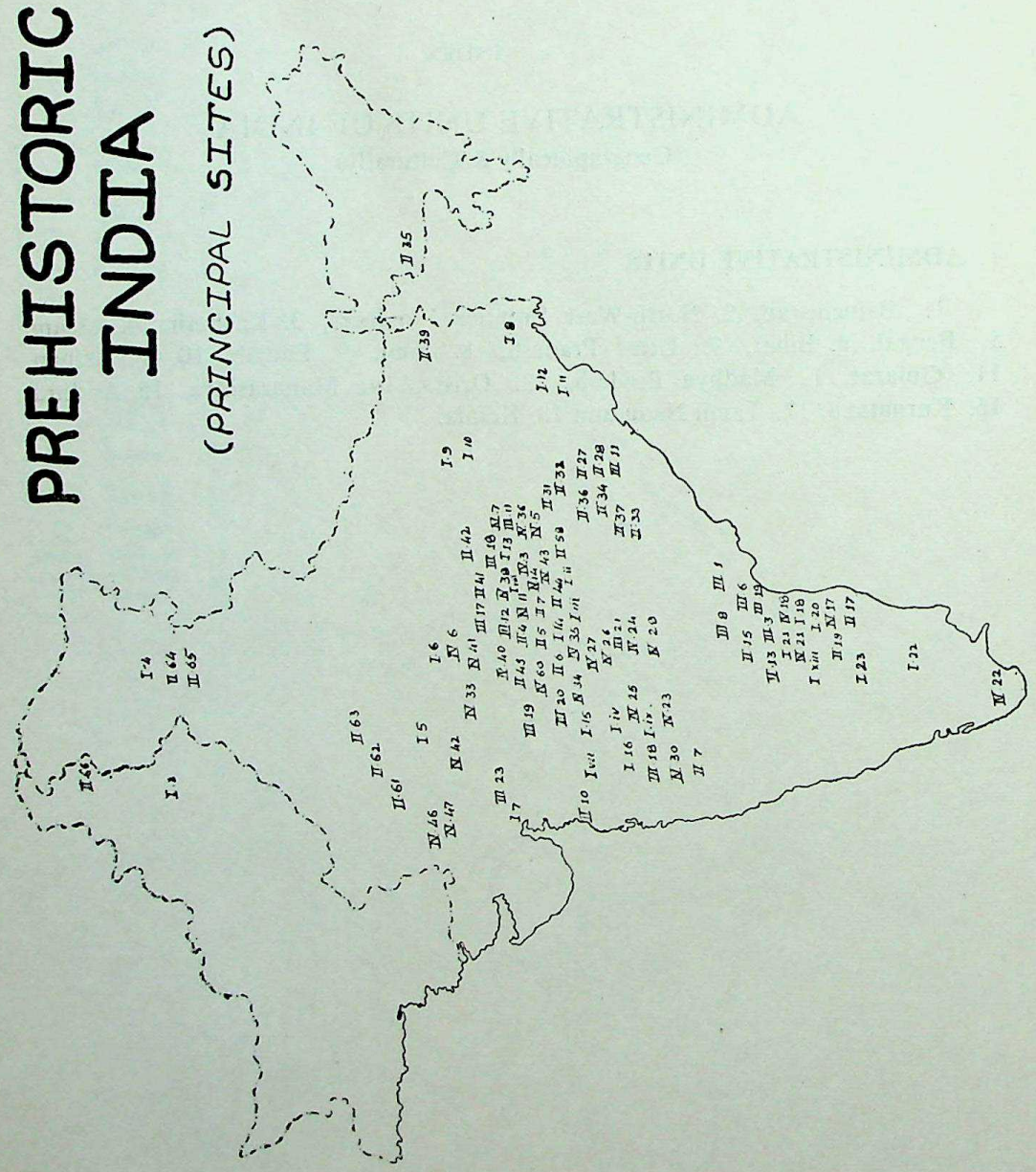

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PREHISTORIC INDIA (PRINCIPAL SITES)

I LOWER PALAEOLITHIC CULTURE

1. Potwar region with the whole of Rawalpindi (Sohan Valley) in West Punjab; 2. Sirsa Valley, 3. Beas and Banganga Valleys in the Kangra District in East Punjab; 4. Pahalgam in Kashmir; 5. Chitor, and 6. Nagari in South Eastern Rajasthan; 7. Sabarmati Valley in Gujarat; 8. Singrauli basin in Mirzapur District of Uttar Pradesh; 9. Sinhbhum District in South Bihar; 10. Sisunia hill in District Bankura, West Bengal; 11. Kamarpal and 12. Kuliana in Orissa; 13. Narsimhapur and 14. Hoshangabad of Narmada Valley in Madhya Pradesh; 15. Nasik and 16. Navasa in Maharashtra; 17. Kurnool 18. Giddalur, 19. Karampudi and 20. Nagarjunakonda in Andhra Pradesh; 21. Angawadi and 22. Nittur in Karnataka and 23. Chingleput District in the Korttalaiyar Valley of Madras.

FOSSIL BEARING SITES

i. Siwaliks (West Punjab; ii. Narsimhapur and iii. Hoshangabad (Madhya Pradesh); iv. Nandur, v. Madhmeshwar, vi. Kalegaon and vii. Nevasa in the Godavari Valley; viii. Chandoli, and ix. Kalamb in District Poona; x. Amraoti, xi. Chanda and xii. Wardha Districts and xiii. Nittur near Tekkalakota, District, Bellary, Karnataka.

II MIDDLE PALAEOLITHIC CULTURE

1. Nevasa, 2. Belpadgari, 3. Suregaon, 4. Kalegaon, 5. Nandur, 6. Madhmeshwar, 7. Koregaoh in Poona District, 8. Rankanala in Khandesh, 9. Bombay area and 10. Bulsar in Maharashtra. 11. Taminhal, 12. Almaiti, 13. Begalkot, 14. Kovalli, 15. Anagwadi, 16. Shorapur Doab, 17. Haragundgi 18. Jawali and 19. Sangankallu in Karnataka. 20. Kurnool, 21. Nalgonda, 22. Karimnagar District and 23. Chitoor District in Andhra. 24. Attiram Pakkam, 25. Vadamdurai and 26. Gudiyam in Tamil Nadu. 27. Bijatala and 28. Khandalia, District Mayurbhanj; 29. Ramla and 30. Jagannathpur in District Keonjhar; 31. Jhirapani and 32. Khurhadi in Sundargarh District and 33. Harichandanpur in Dhenkenal District in Orissa. 34. Bankura, 35.

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Birbhum, 36. Midnapur, 37. Purulia, 38. Dist. of 24-Parganas and 39. Jaipai-Buri in West Bengal. 40. Garo hills in Meghalaya in Assam. 41. Tons Valley, ganda District; and 42. Bellan Valley in District Allahabad in Uttar Pradesh 43. Narsimhapur; 44. Hoshangabed, 45. Maheshwar, 46. Gonchi on Betwa; 47. Sihora, 48. Sonar and 49. Bearma, Damoh District, 50. Upper Son; 51. Bandav Falls, 52. Baghain River Gravels; 53. Kanhari Fields and 54. Rehuntiya, 55. Dongergaon, 56. Choli on either side of Narmada river; 57. Piparia; 58. Amarkantaka, 59. Khanki Mata and 60. Rau near Indore in Madhya Pradesh. 61. Luni Basin, 62. Chambal and other valleys and 63. Chitor on Bedoch in Rajasthan 64. Pahalgam and 65. Ganeshpur in Kashmir. 66. Sangho cave near Peshwar and 67. Parkho Dara Cave.

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ROCK SHELTERS AND CAVES

Sites in the Districts of i. Sehore, ii. Bhopal, iii. Raisen, iv. Hoshangabad, v. Sagar and vi. Mandsor in Madhya Pradesh; and vii. Mirzapur District in Uttar Pradesh.

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IV. CHALCOLITHIC CULTURE

1. *Banas Chalcolithic Culture*: i. Ahar, ii. Baghor and iii. Gilund.

2. *Chalcolithic Culture of Madhya Pradesh*:
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3. *Northern Deccan Chalcolithic Culture*:
i. Jorwe, ii. Nevasa and iii. Daimabad in Ahmednagar District; iv. Chandoli, v. Sonagaon, vi. Inamgaon in Poona District, vii. Prakash, viii. Bahal and ix. Nasik.

4. *The Neolithic Chalcolithic Culture of the South*:
i. Brahmagiri, ii. Maski, iii. Piklihal, iv. Sangankallu v. Tekkalakota, vi. Hallur, vii. Utnur, viii. Kupgal and ix. T. Narsipur.

5. *Chalcolithic Culture of the Gangetic Doab*:
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6. *Chalcolithic Culture of Saurashtra*:
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8. *Copper Hoards*:
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VI. MEGHALITHIC CULTURE

1. Brahmagiri, Dist. Chitaldurg in Karnataka;2. Nagarjunakonda, Dist. Guntur, 3. Maski, Dist. Raichur; 4. Yelleswarm, Dist. Nalgonda; 5. Pochampad, dist. Adilbad in Andhra Pradesh. 6. T. Narsipur, Dist. Mysore; 7. Hallur, Dist. Dharwar and 8. Sangankallu, Dist. Bellary in Karnataka. 9. Kunnaittur, Dist. Chingleput and 10. Paiyampalli, Dist. North Arcot in Tamil Nadu.

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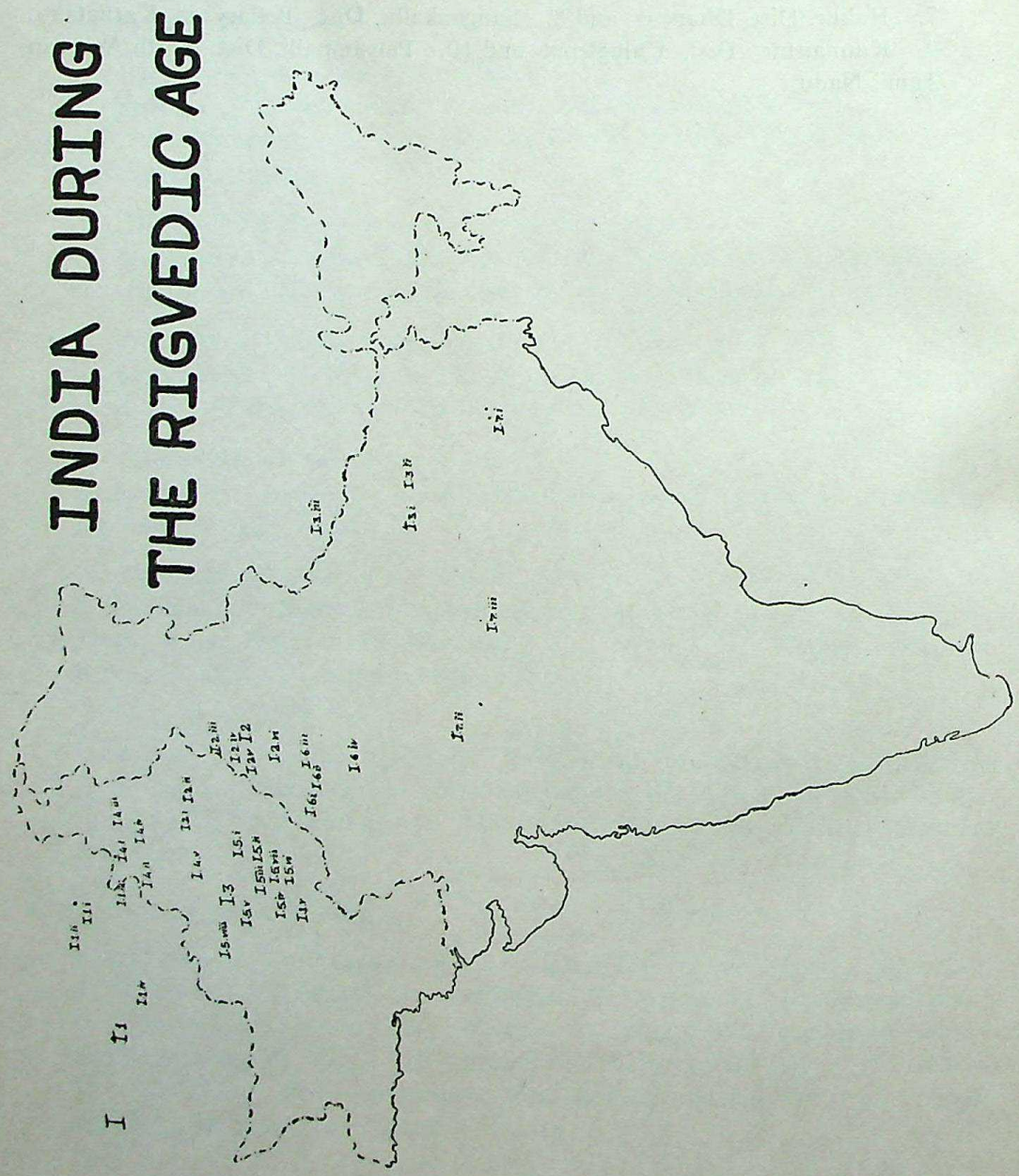

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INDIA DURING THE RIGVEDIC AGE

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5. *Tribes of Sind and the Punjab*:

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6. *Tribes of the region of Madhyadeśa in the eastwards*:

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7. *Other Tribes*:

The eastern most i. Kīkṭas ii. Matayas (Rajasthan) and iii. Chedis (Madhya Pradesh).

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2. *Punjab and the Adjacent Areas*:

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3. *Eastern Tribes*:

i. Kosala. ii. Kāśī, iii. Videha, iv. Magadha, v. Aṅga, vi. Vaṅga.

4. *Southern Tribes*:

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5. *Non-Aryan Tribes*:

i. Andhras, ii. Puṇḍras, iii. Śabaras, iv. Pulindas and v. Mūtibs.

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(Expansion and Settlements.)

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1. Ayodhyā, 2. Pratishṭhāna, 3. Māhishmatī, 4. Sāhañjani 5. Vārāṇasī, 6. Champā, 7. Kishkindhā, (South of the river Kṛishṇā), 8. Alakā, 9. Prayāga, 10. Chitrakūṭa, 11. Pañchavaṭī (near Nasik), 12. Nanasthāna, 13. Kuśāvatī (on the Vindhya Hills), 14. Śrāvasti, 15. Takshila, (Taxila, near Rawalpindi), 16. Pushkalāvatī (Modern charsadda), 17. Aṅgadīyā, 18. Chandrkāntā, 19. Mathura, 20. Hastināpura. 21. Kāmpilya, 22. Dvārakā, 23. Indraprastha, 24. Girivraja, 24. Parichakrā, 25. Ahichchhatra, and 26. Rājagṛiha.

TOOLS OF STONE AGES

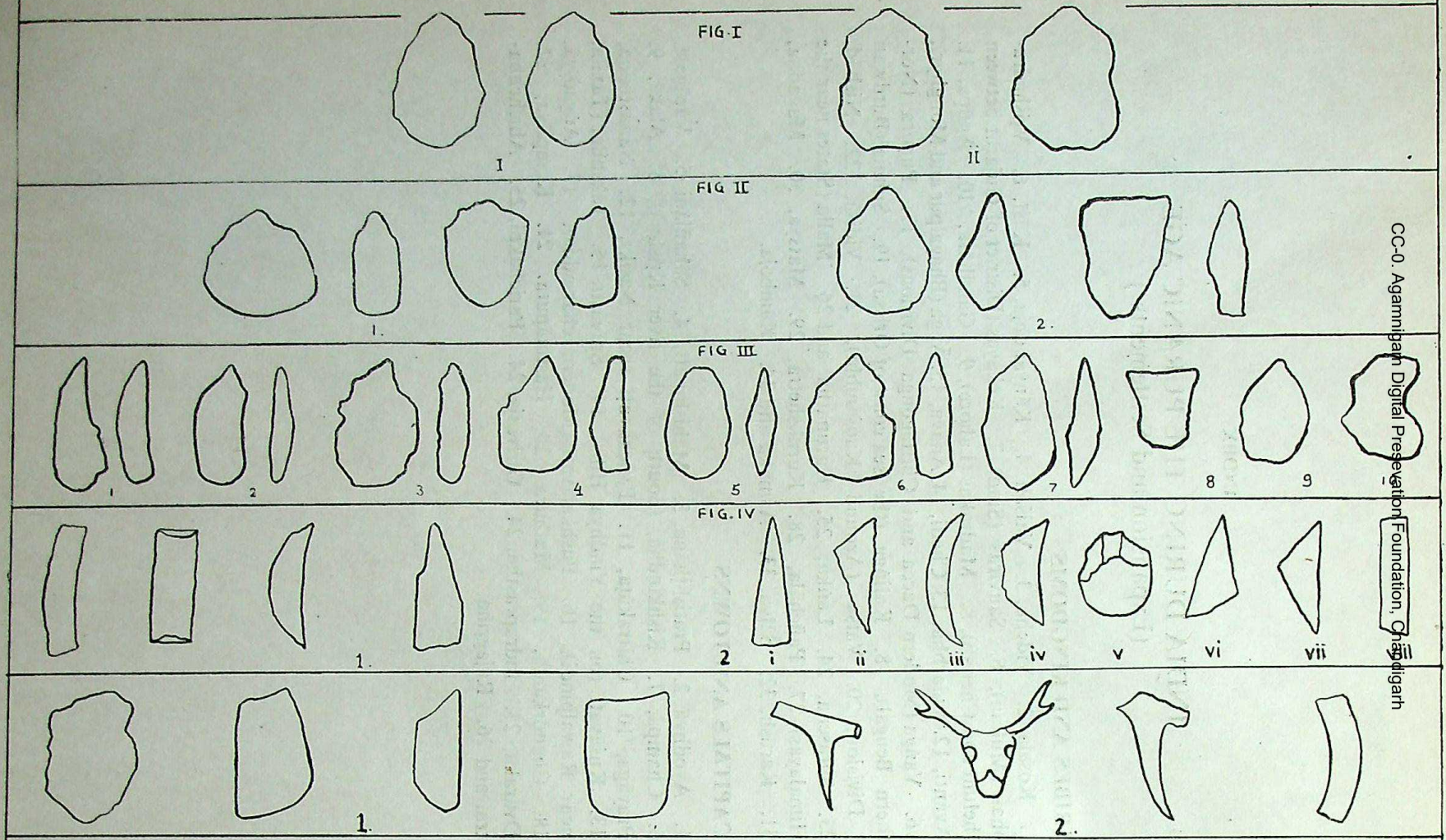

FIG. I 1. MASSIVE FLAKE, PAHALGAM; 2. HANDAXE, PAHALGAM; FIG. II 1. CHOPPER-CHOPPING COMPLEX SOHAN TOOLS. 2. HANDAX-CLEAVR COMPLEX. FIG. III MIDDLE PALAEOLITHIC TOOLS; TYPES-1. SIDE SCRAPER; 2. DRILL; 3. POINTS; 4 END SCRAPER, 5 SPEARHEAD; 6. BORER; 7 BURIN; 8 ARROW-HEAD; 9 BLADE AND; 10 HOLLOW SCRAPER; FIG. IV 1. UPPER PALAEOLITHIC. TOOLS; 2. MESOLITHIC TOOLS; TYPES-i. CRESCENT, ii POINT iii SCRAPER iv. BURIN. v FLUTED CORE VI. TRAPEZE, vii TRIANGLE viii BLADE FIG V. 1. NEOLITHIC TOOLS 1. GROUND AND POLISHED STONE TOOLS

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METAL OBJECTS

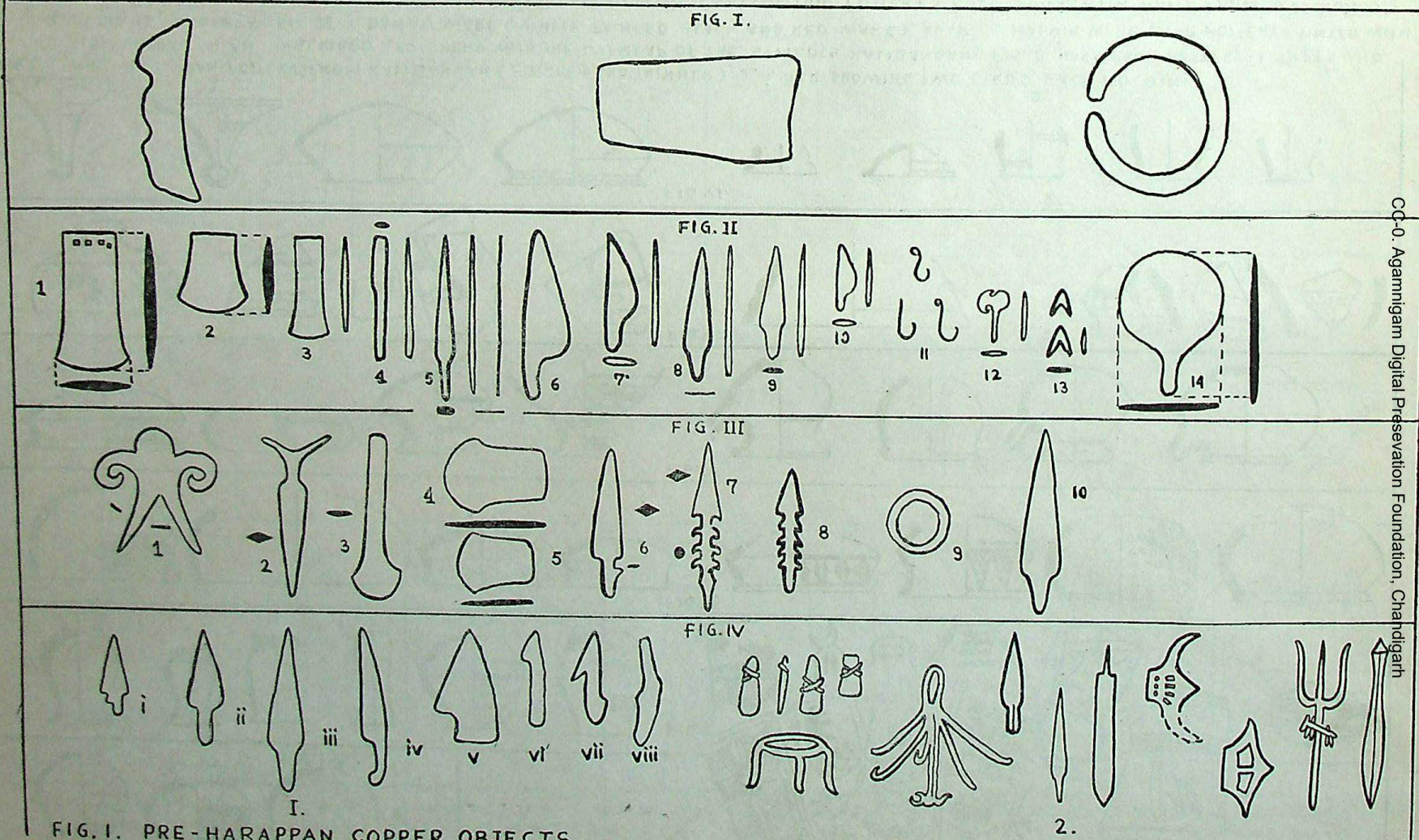

FIG. I. PRE-HARAPPAN COPPER OBJECTS.

FIG. II. MOHENJODARO AND HARAPPAN COPPER AND BRONZE TOOLS AND WEAPONS 1-14.

FIG. III TOOLS FROM THE DOAB COPPER HOARDS — 1. ANTHROPOMORPHIC FIGURE; 2. ANTENNAE SWORD; 3. BAR-CELT; 4. SHOULDERED CELT; 5. FLAT CELT; 6. HOCKED SPEARHEAD; 7. HARPOON; 8. HATCHET; 9. RING; 10, DOUBLE-EDGED AXE

FIG. IV. 1. IRON OBJECTS FROM ATRANJIKRERA; i-iv. v-viii, ALAMGIRPUR; 2. IRON OBJECTS FROM SOUTH INDIAN GRAVES.

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POTTERY

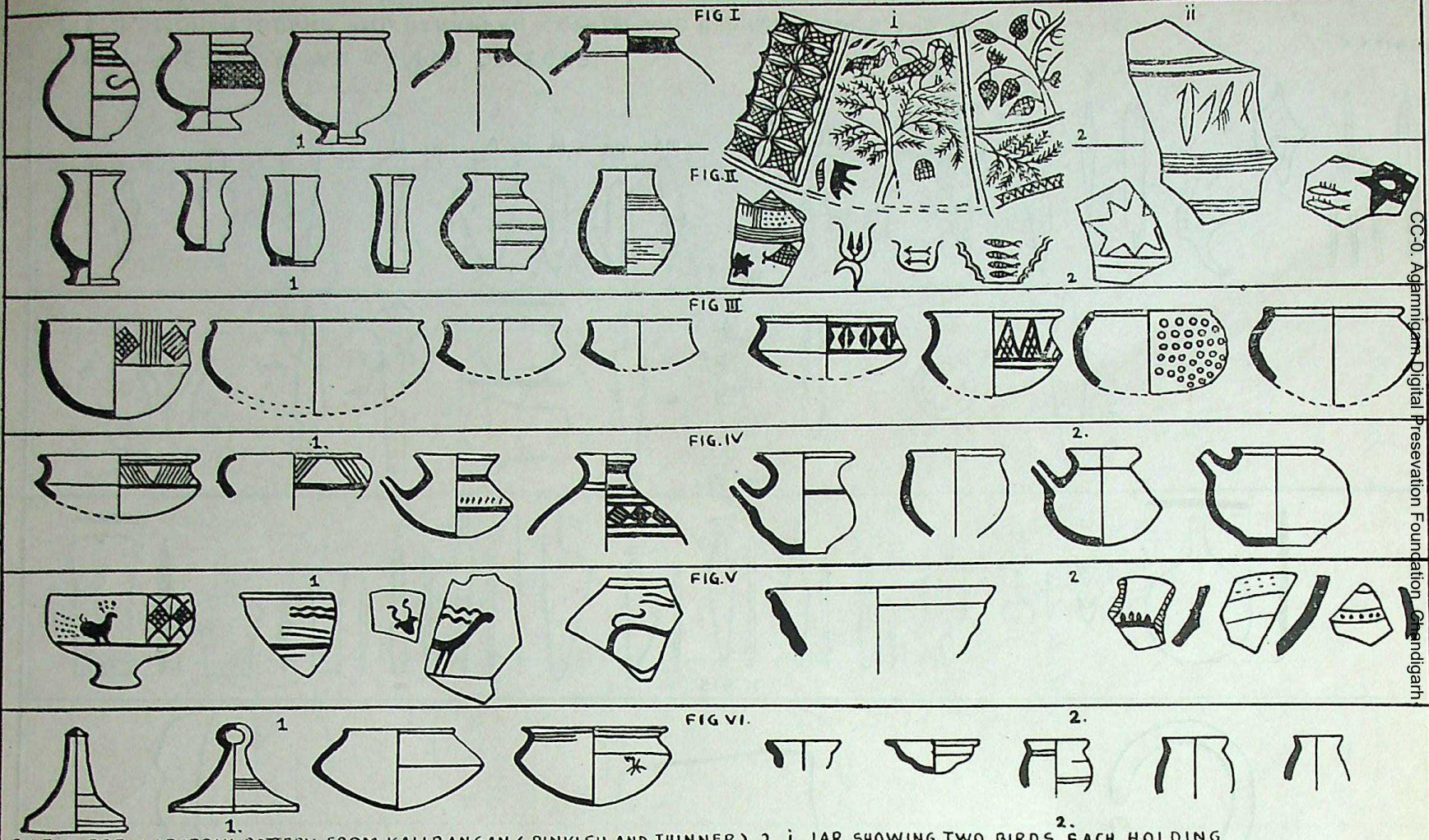

FIG.I. 1. PRE-HARAPPAN POTTERY FROM KALIBANGAN (PINKISH AND THINNER); 2. i. JAR SHOWING TWO BIRDS, EACH HOLDING FISH LOTHAL; ii AN INSCRIBED POTSHERD WITH THE OVERLAP OF THE SYMBOLS, KALIBANGAN; FIG. II HARAPPAN POTTERY - 1. TYPES AND 2 DESIGNS, HARAPPA; FIG III 1. BANAS WARE (WHITE PAINTED BLACK AND RED WARE), AHAR; 2 MALWA WARE (RED POTTERY PAINTED WITH BLACK DESIGNS), NAVDATOLI. FIG. IV. 1. NORTHERN DECCAN CHALCOLITHIC POTTERY (PALE-WARE WITH WHITE PAINTED DESIGNS). NEVASA AND JORWE; 2 NEOLITHIC CHALCOLITHIC POTTERY (BURNISHED GREY WARE) BRAHMA GIRI AND PIRLIHAL.

FIG. V. 1. SAURASHTRA CHALCOLITHIC POTTERY (LUSTROUS RED WARE); RANGPUR; 2 GANGETIC CHALCOLITHIC POTTERY, (OCHERE WARE) ATRANJIKHERA; VI. i. MEGALITHIC POTTERY (BLACK AND RED) SOME WITH GRAFEITI, BRAHMEGIRI, ii PAINTED GREY WARE, ATRANJIKHERA

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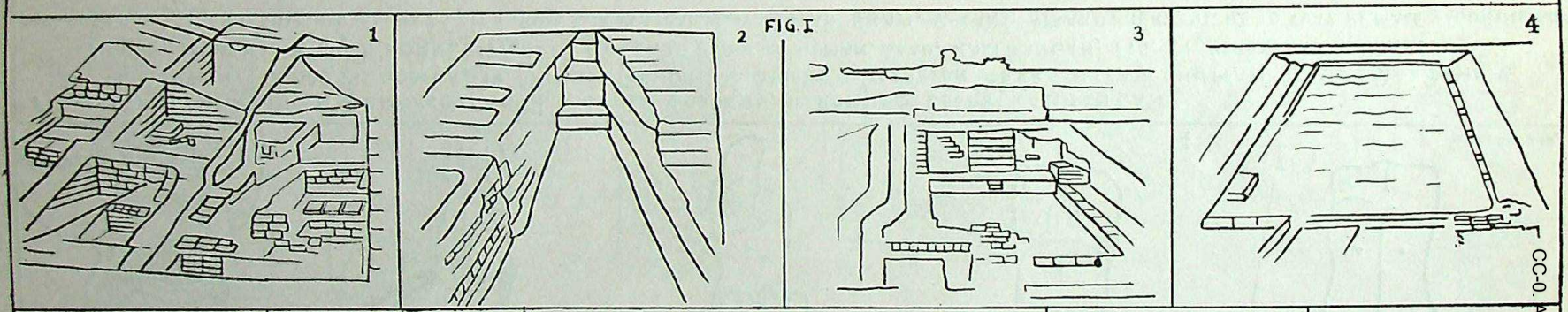
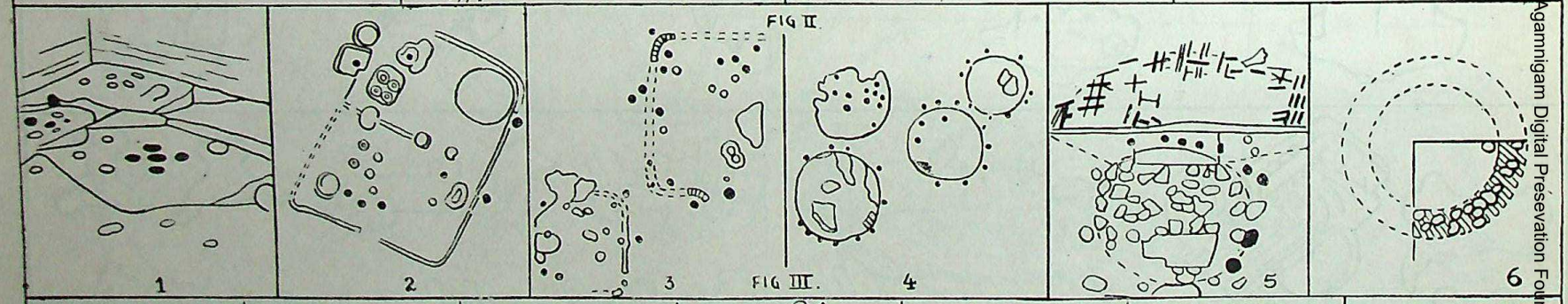
SETTLEMENTS, BURIALS AND SKELTONS





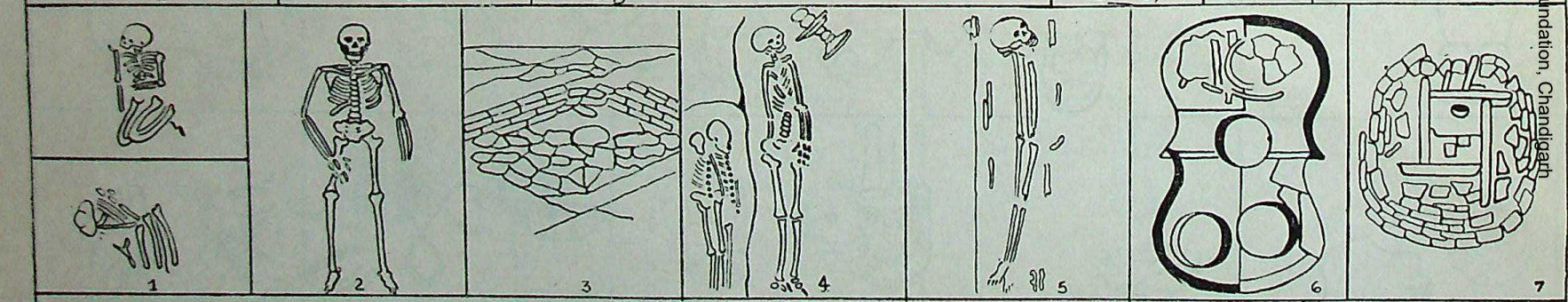


FIG.I. SETTLEMENTS - 1. PRE-HARAPPAN BENEATH; HARAPPAN CITADEL, KALIBANGAN, 2. STREETS AND HOUSES OF HARAPPAN PERIOD, KAIBANGAN, 3. GREAT BATH. MOHENJO-DARO, 4 THE DOCKYARD, LOTHAL. FIG II 1 PITDWELLINGS FROM BURZ AHOM, KASHMIR, 2 A MALWA HOUSE; 3 EARLY JORWE HOUSES; 4 LATE JORWE HOUSE, INAMGAON; 5. PLAN OF A CIRCULAR, EARLY NEOLITHIC SANGANAKALLU, 6 PLAN OF A CIRCULAR STRUCTURE, TEKKALAKOTA. FIG. III BURIALS AND SKELTONS - 1. HUMAN SKELTON FROM LANGHNAI, GUJARAT 2. EXTENDED BURIAL, KALIBANGAN, 3 FRACTIONAL BURIAL; MOHENJO DARO, 4 BURIAL AND DOUBLE BURIAL, LOTHAL, 5 EXTENDED BURIAL, BAGHOR, 6 URN BURIAL; NEVASA, 7 IRON AGE CIST GRAVES FROM BRAHMAGIRI, SHOWING POST-HOLE AND GRAVE GOODS.

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TERRACOTTAS AND SCULPTURES

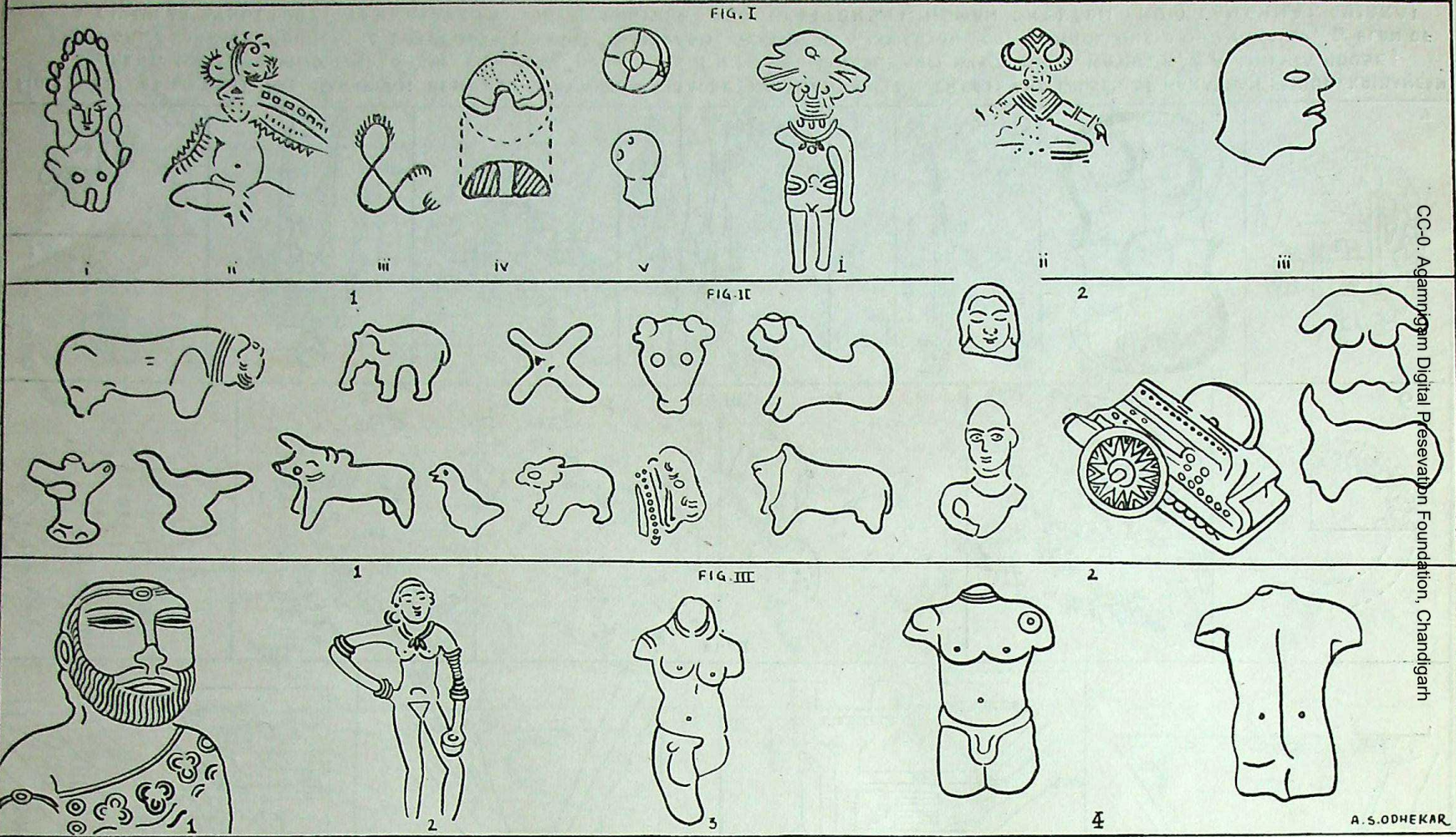

FIG. I 1. PRE-HARAPPAN TERRACOTTAS - i. MOTHER GODDESS, ii. HORNED DEITY KALIBANGAN; iii. SERPENT GODDESS, GOMLA, iv SPINDLE WHORL; v. OTHERS, 2 HARAPPAN TERRACOTTAS (HUMAN FIGURES) - i FEMALE FIGURE, MOHENJU DARO; ii HORNED FIGURE, MOHENJU DARO; iii HUMAN HEAD, KALIBANGAN; FIG. II 1. BIRDS AND ANIMALS. MOHENJU DARO, 2 CHALCOLITHIC FIGURES - i-ii. BULLS, KAYATHA; iii iv HUMAN, ERAN; v. CART, ATRANJIKHERA; vi. HEAD CLAY FEMALE FIGURINE SHOWN STANDING ON THE BACK OF A BULL, INAMGAON. FIG III. HARAPPAN SCULPTURES - 1. STONE SCULPTURE OF BEARDED HEAD, (HEIGHL 19 CM) MOHENJODARO, 2 BRONZE FIGURE OF DANCING GIRL (HEIGHT 10 2 CM.) MOHENJODARO, 3 STONE DANCING FIGURE (HEIGHT 10 CM.), HARAPPA, 4 TWO VIEWS OF SMALL STONE FIGURE, (HEIGHT 9.3 CM.) HARAPPA

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SEALS AND JEWELLARY

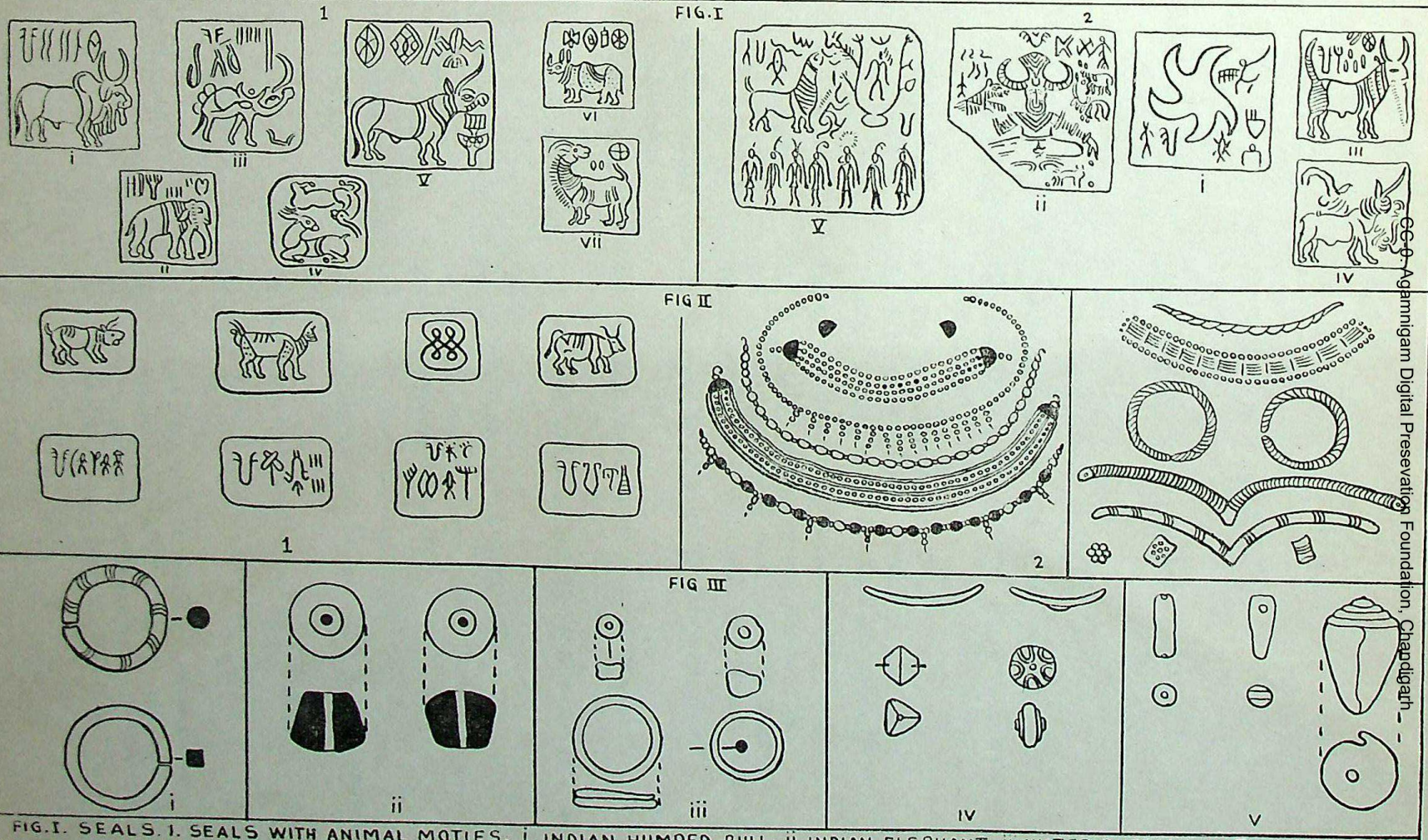

FIG.I. SEALS. 1. SEALS WITH ANIMAL MOTIES, i. INDIAN HUMPED BULL; ii INDIAN ELEPHANT, iii WATER BUFFALO WITH FEEDING TROUGH; IV. PAIR OF ANTELOPE; V. BULL OF PRIMOGENIUS TYPE WITH MANGER; Vi INDIAN RHINOCEROS Vii MOUNTAIN GOAT.; MOHENJO-DARO. 2. SEALS WITH MYTHOLDGICAL OR RELIGIOUS CONTENT i. COMPOSITE ANIMAL, STARFISH WITH HEAD OF BULL, ii. SEATED FIGURE OF HORNED GOD; iii COMPOSITE ANIMAL BULL-ELEPHANT TIGER; iV COMPOSITE. BULL ANTELOPE; V. MYTHOLOGICAL SCENE. MOHENJO-DARO, FIG. II. i. HARAPPAN COPPER TABLETS, MOHENJO-DARO; 2. i. NECKLACES, MOHENJO-DARO; PERSONAL ORNAMENTS, MOHENJ-DARO FIG. III. i. CHALCOLITHIC PERIOD, i. COPPER BANGLES, KAYATHA ii INCISED TERRACOTTA BEADS, AHAR; iii BEAD AND RINGS, NAVDATOLI; iV GLASS BANGLES AND OTHERS OF PAINTED GREY WARE CULTURE, V VARIOUS TYPES OF BEADS

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